VOLUME VIII FEBRUARY, 1915 NUMBER 2

Southern Medical Journal

Journal of The Southern Medical Association

THE TRUTH AND THE TRUTH ONLY ON EVERY PAGE FROM COVER TO COVER

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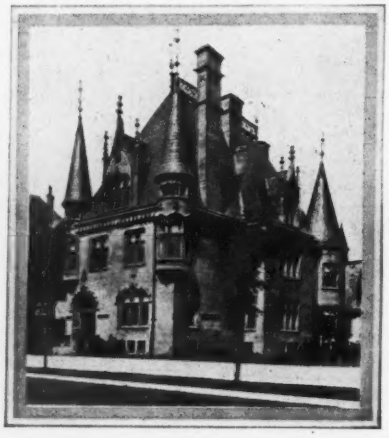

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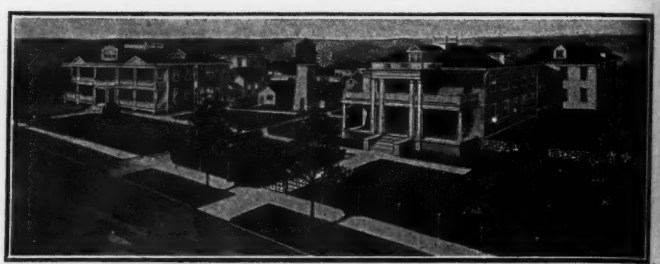

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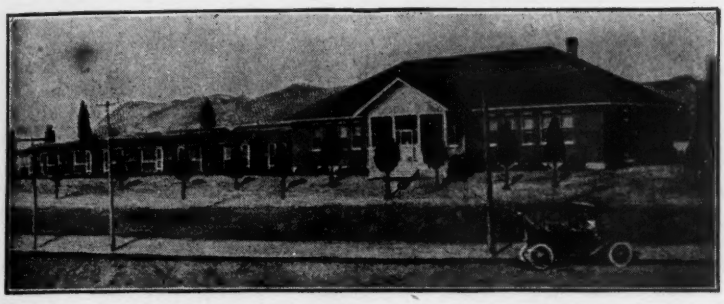

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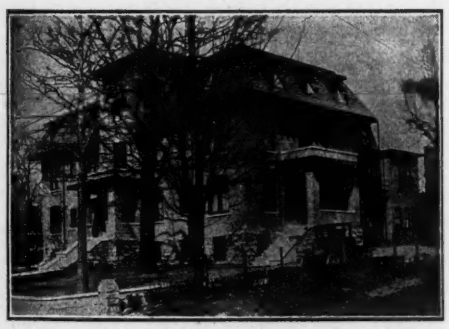

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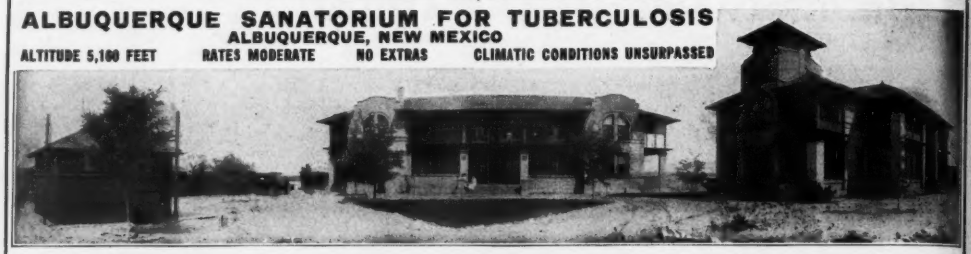

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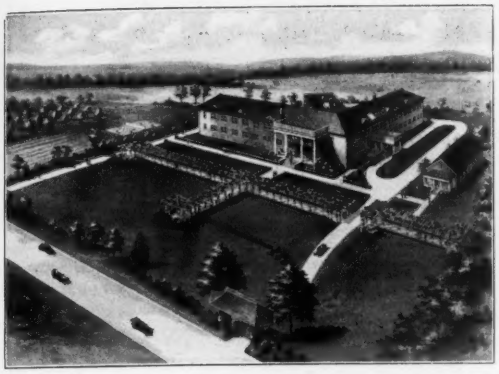

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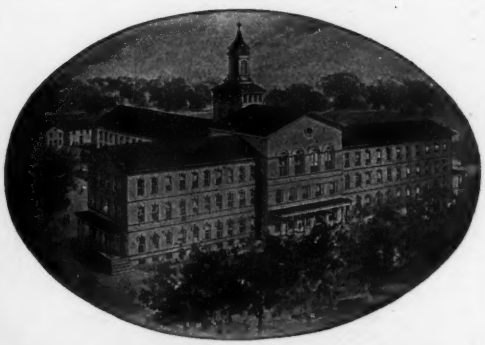

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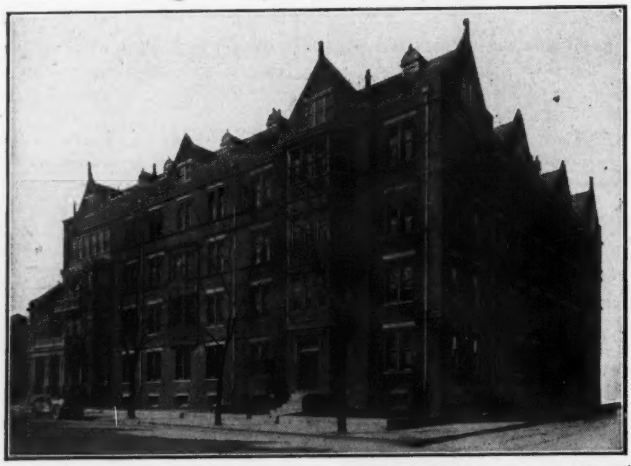

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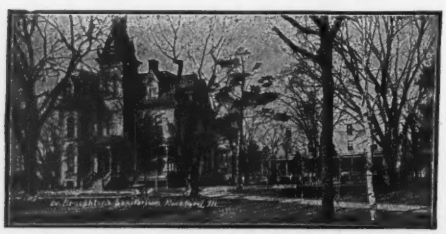

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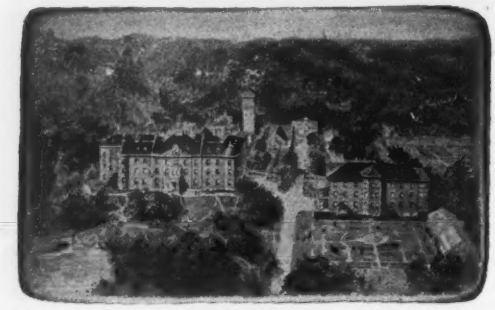

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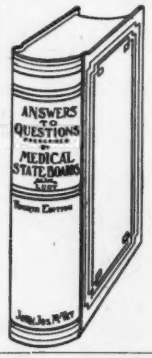

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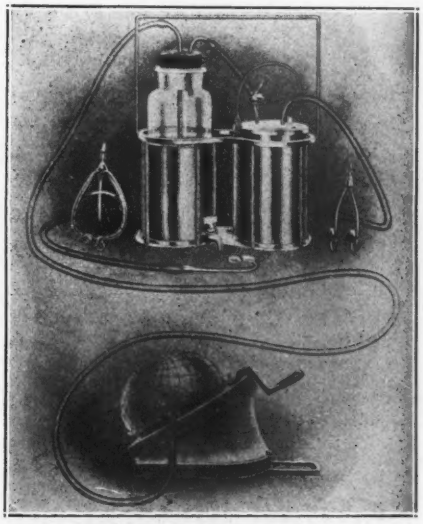

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Volume VIII | FEBRUARY 1, 1915 | Number 2

ORIGINAL ARTICLES

ANTI-PLAGUE MEASURES—WITH SPECIAL REFERENCE TO THE NEW ORLEANS CAMPAIGN.*

By Rupert Blue, M.D.,
Surgeon-General, U. S. Public Health Service.
Washington, D. C.

Plague has been recognized from remote ages. It is said to have existed in Egypt and Asia Minor 400 years before the Christian era. One of the earliest references in literature to the disease is found in the first book of Samuel, fifth and sixth chapters.

As "The Great Plague" it visited London in the seventeenth century, claiming more than 63,000 victims in the year 1665. In John Evelyn's* diary we find this entry:

"Sept. 7th, 1665. Came home, there perishing neere 10,000 poor creatures weekly; however, I went all along the citty and suburbs from Kent Streete to St. James's, a dismal passage, and dangerous to see so many coffines expos'd in the streetes, now thin of people; the shops shut up, and all in mourneful silence, not knowing whose turn might be next. I went to ye Duke of Albemarle for a pest-ship, to wait on our infected men, who were not a few."

*Public address, Southern Medical Association, Eighth Annual Meeting, Richmond, Va., Nov. 11, 1914.

Sanitary science had not advanced very far at this time, as charms and incantations were relied upon, even by fellows of the Royal Society, to stay the pestilence.

In the years 1894 to 1900 plague spread from Canton, China, to Europe, Africa, Australia, and North and South America. As a matter of fact, nearly every region of the habitable globe has been visited by the disease in the past fifteen years. The alarming fact in this connection is that it appears to have become permanently established in parts of the New World, namely, Brazil, Ecuador, Peru and Venezuela. Severe epidemics have occurred in these countries and all classes of the population have suffered.

Plague was officially announced December 22, 1902, in Mazatlan, Mexico. From this date until March 20, 1903, 314 cases, with 254 deaths, were reported. Cases were also reported at Ensenada, LaPaz and Guaymas, Mexico, during the latter part of 1902.

The first appearance of plague in the United States dates back to March, 1900, when cases of the disease were found among the Chinese of San Francisco. It did not assume alarming proportions at any time, however, and was stamped out in 1904. From 1900 to 1904 there were 121 cases, with 115 deaths.

In May, 1907, however, the disease reappeared in San Francisco, and continued until

*Royal commissioner for sick and wounded prisoners of the war with Holland, 1665.

January, 1908. All sections of the city were invaded, and all classes of people suffered. One hundred and sixty cases, with seventy-seven deaths, were recorded in this outbreak. There were also a few cases at Berkeley, Point Richmond and Oakland, Cal., during the year 1907.

A few cases of plague were reported in Seattle in 1907, and infected rats have been found at various times since that date.

The most notable fact in the history of plague in California was the appearance of the disease in the rural districts of the state. In 1908 a widespread epizootic was discovered among ground squirrels, a rural rodent that abounds on the Pacific Coast. The date of the extension of the infection from urban to rural rodents is not known, but we are safe in saying that it occurred during the first visitation of the plague in San Francisco.

On June 17, 1912, the Public Health Service was notified of the presence of plague in San Juan, Porto Rico, and officers were at once sent to take charge of the eradicative campaign. During this outbreak fifty-five cases occurred, ten having developed at the date of announcement and forty-five thereafter. The infection extended to four points outside of San Juan, namely, Carolina, fourteen miles distant; Caguas, twenty-three miles; Arecibo, about fifty miles, and Rio Piedras, three miles. The last case of human plague occurred in San Juan Sept. 12, 1912, and the last infected rat was found on Dec. 19 of that year. Eradicative measures and laboratory examination of rats were continued, however, for nearly a year after the latter date. No further infection being discovered, work was discontinued on Oct. 31, 1913.

The summer of 1912 also marked the first appearance of plague in the Island of Cuba, the first case occurring at Havana on June 30, and being followed by two other cases, on July 9 and July 22. On March 5 of the present year the disease reappeared in that city, and since that time forty-three cases have occurred in the island, the infection having spread to Artemisa, San Jose de las Lajas, El Aceite and Santiago.

This brings us to the outbreak of the disease at New Orleans, of which more will be said later.

INTERNATIONAL PLAGUE PREVENTION.

The frequent and awful visitations of plague in various parts of the world have caused governments to take measures against it. In 1897 an International Sanitary Conference was held at Venice and quarantine regulations were framed with a view to preventing the further spread of the disease. These measures, however, were based on the belief that the infection was spread by human agencies. At the second international conference, held at Paris in 1903, the role of the rat was recognized and revised regulations were issued. Representatives of the United States Public Health Service attended this conference and took part in its deliberations. Forty governments were represented by delegates.

The nations of the Western Hemisphere have given official consideration to the prevention of the spread of plague, as a pan-American question, since 1902. In that year the first General Sanitary Convention of American Republics was held in Washington. Three years later, at the second General Sanitary Convention, also held in Washington, a convention ad referendum was concluded, containing provisions for the reciprocal notification of the presence of plague, cholera and yellow fever, and measures to be observed by all countries signatory thereto with reference to infected areas.

Resolutions relating to the prophylaxis of plague, cholera and yellow fever were adopted by the fourth International Sanitary Conference of the American Republics, in 1909, in part as follows:

Article II. (a) To recommend especially to the various governments that they employ all possible means at their disposal to secure the effective sanitation of seaports, to the end that the introduction of plague, cholera, and yellow fever may

be prevented, and in the event that a case of either of these diseases reaches a port that it be promptly isolated and measures taken to prevent its spread.

(b) To recommend special ordinances for the proper construction of rat-proof buildings, especially those designed for the storage of foodstuffs, such as markets, granaries, abattoirs, stables, etc.

(c) To make obligatory the use of galvanized iron garbage cans with tight fitting covers for the reception of refuse from houses, and to arrange for the daily disposal of such refuse.

(d) That properly equipped laboratories be provided at all seaports where the periodical examination of rats may be made so that plague can be apprehended before its appearance in human beings.

(e) That the crusade against the mosquitoes "stegomyia calopus" and "anopheles" be carried on vigorously along lines which have been shown to bring the best results.

Article III. (a) That careful statistics on population, morbidity and mortality be kept at every port, such data to be compiled at intervals of not more than one month, and also annually.

Article IV. (a) That it is the duty of owners and masters of vessels to rid their vessels of rats, and to use all possible means to keep them free therefrom.

(b) That this should be acomplished by the periodical fumigation of the holds of vessels with sulphur gas at periods of from three to six months and at times when advantage may be taken of the vessels being free from cargo or laid up for repairs; and at all other times vigilance should be exercised by the masters for the destruction of rats by such other means as they may deem most effective.

Measures were also recommended for the control of malaria, uncinariasis, tuberculosis, and for the installation of water supplies and sewerage systems. It will be seen from the foregoing that the governments of the American republics have a profound sense of their responsibilities with regard to the international control of communicable diseases. Unfortunately, however, poor organization and lack of funds have undoubtedly prevented a thorough compliance on the part of some of these governments with the text of the resolutions.

FEDERAL QUARANTINE MEASURES IN FOREIGN LANDS.

The presence of plague in many parts of the world and the fear of its introduction into the United States by means of infected vessels caused the Public Health Service to detail medical officers at strategic points in foreign countries. Officers have been stationed at various times at Guayaquil, Callao, LaGuaira and Rio de Janeiro with specific instructions to maintain a close surveillance of ships and to cause the destruction of rats found aboard. Since 1900 officers have also been stationed at Naples, Hongkong, Shanghai, Yokohama and Kobe with similar instructions. It may be said that these officers constitute the first line of defense for the United States, and it should be stated that their work has been of inestimable value in preventing the importation of plague and other epidemic diseases.

CAUSE AND MODE OF TRANSMISSION.

The cause of this disease is the bacillus pestis, discovered by Kitasato and Yersin in 1894. It is introduced into the human body by the bite of fleas that have fed on infected rodents. The pneumonic form is conveyed by the air in badly ventilated houses in which plague cases have occurred.

The relation between the prevalence of plague among rodents and its outbreak in man is emphasized in the chronicles of the disease, the infection being generally transmitted from rat to rat and from rat to man. Every outbreak in man is preceded by plague epizootic among rodents. As a matter of fact, the infection is kept alive from year to year through the medium of these animals. The expediency of destroying rats as a means of preventing plague is obvious. These principles were applied in San Francisco (1907) with the most gratifying results, the disease having been eradicated within three months after active operations had been inaugurated.

PLAGUE IN NEW ORLEANS.

The first case of plague in New Orleans was reported on June 27 last, in the person of C.

L., a native of Sweden, who had been in the city since June 16. History of previous residence was not obtainable. The patient died on June 28.

The origin of the infection is unknown, but there is strong suspicion that it was imported from the Canary Islands as early as June, 1912, coincidentally with the appearance of the disease at San Juan and Havana. It is now known that plague prevailed in the Canary Islands in 1907 and 1909 in severe form, and that cases continued to appear in the city of Santa Cruz up to and including the year 1914. The existence of plague was denied by the governmental authorities.

Request was made by the authorities of New Orleans, and concurred in by the state health authorities of Louisiana, that the Public Health Service assume charge of eradicative measures, and this course was authorized by the Secretary of the Treasury on July 3. Since the beginning of the outbreak thirty cases of human plague have occurred, the last of these on Sept. 30.

A splendidly organized campaign is being waged in New Orleans at the present time by experienced officers, and there can be no doubt as to the outcome.

NOTE.—The remainder of Surgeon-General Blue's address consisted of a series of forty stereopticon views, illustrating anti-plague operations in New Orleans, La., with explanations.

EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS—THE ESSENTIAL FACTOR IN PREVENTION AND CURE.*

BY CHAS. HARTWELL COCKE, B.A., M.D.,
Asheville, N. C.

I take it none will dispute my thesis, that the early recognition of pulmonary tuberculosis is essential to prevention and cure, a proposition needing only academic defense, hence not dwelt upon here. Just how necessary is some *new* forward step in the prevention of this disease is seen from the figures of the United States Census Bulletin, No. 112 (Mortality Statistics), for the year 1911, the latest available data for the registration area. In that year the number of deaths from pulmonary tuberculosis was 78,514 in an area which holds 63.1 per cent of our population, or representing for the whole United States, if the same death rate obtains, approximately 124,427 people who die annually of pulmonary tuberculosis, and it must be remembered that for one who dies of this disease there are countless others suffering from it.

Though the death rate from tuberculosis has shown considerable improvement over that of a decade or so ago, further study of statistics with which I shall not weary you shows that it is less in rural than in urban communities, while a closer study still of the figures presented by Newsholme before the Sixth International Congress on Tuberculosis[1] shows that whereas overcrowding, deficiency in proper food and other necessities of life, inebriety and poverty are all contributing factors to the greater prevalence of urban tuberculosis, relief of the above unfortunate conditions is not immediately followed by any marked lowering of the tuberculosis rate, unless this relief is accompanied by synchronous segregation of the known advanced cases. In other words, the infection still claims its victims with regularity and universality despite bettered hygienic surroundings unless its host is segregated domestically or institutionally. If this be so, and Dr. Newsholme's figures will stand, I think, the solution of the problem of the prevention of tuberculosis resolves itself into the recognition and subsequent proper control of each case before that case becomes a potential focus of infection for all with whom it may come in contact.

Granted, then, that to control the spread of tuberculosis, we must recognize it early, how

*Read in Section on Medicine, Southern Medical Association, Eighth Annual Meeting, Richmond, Va., November 9-12, 1914.

may this be done? Drs. Rankin, Cooper, Lloyd and others will tell you this afternoon better than I could hope to do the part which state medicine must take in this campaign. I shall not trespass on their ground save to commend as helpful aids to early diagnosis all rational procedures which bring before the public the ever-present dangers of neglect and procrastination. Stereopticon views, moving pictures, health exhibits, lectures, advertisements, placards, etc., all doubtless have their proper place and function, which is to bring the ignorant, the unthinking, the careless, the dilatory, the strong-as-an-ox man to a proper realization of the dangers of neglect of a persistent cough, especially hanging on after the grippe, of an unexplained loss of strength and weight with fitful appetite and digestion, of a slight temperature instability so frequently masquerading as malaria, and of an inexplicable feeling of being under par with the snap and zest of life lost. With a full appreciation by all, of these risks, a long step forward will have been taken toward the early discovery and control of tuberculosis.

Given an enlightened curiosity or interest on the part of the public, who is to make the diagnosis? Undoubtedly the family physician, though I realize fully the difficulties under which he labors in attaining to that proper detachment where he is willing to make an early diagnosis or one founded on suspicion. I could wish that time did not forbid a discussion of the value of the dispensary and clinic as diagnostic aids to the busy practitioner, and I am confident the day is not distant when far better facilities will be offered the medical student for perfecting himself in the diagnosis of pulmonary tuberculosis. I do not hold with Calmette, however, that hopefulness of a cure is well-nigh lost with the advancement of the process to demonstrable radiographic evidences of disease or with the presence of adventitious auscultatory phenomena, and yet it is always well to remember that only 35 per cent of incipient cases show bacilli in the sputum, and we should not wait for their presence for definite daignosis.[2] We cannot afford to allow the patient to lose that most valuable time for arresting his trouble between the first suspicious symptoms and developments and the actual presence of bacilli in the sputum. The Germans say: "Jeder Mann hat ein bischen Tuberkulose," and it behooves us to treat each suspect as though he were tuberculous till we prove the contrary.

I cannot too strongly urge the value and necessity of careful history-taking, *among other things,* with the expectation of finding some contact infection, remote possibly, but none the less valuable, for our tuberculin tests show us clearly how early we fall a victim to tuberculous infection, though years may pass before any evidence of disease calls our attention to the possibility. I must say a word too about the value of the little details in history-taking as well as in the examination. It is their aggregate value or numerical preponderance to which we give weight sufficiently frequently to turn the scales to a definite diagnosis. Nor can we afford to be satisfied with one examination, if that be indefinite in results. Repeated examinations over many weeks if necessary with the most careful two-hourly temperature and pulse records, especially after exercise and eating, will quite frequently determine the diagnosis.

The history that the sufferer from incipient tuberculosis gives is by no means characteristic, and for this very reason I wish to stress the minutiae. Undue weariness and languor, failing strength and weight, capricious or vanishing appetite, slight indigestion or heaviness after eating, slight or no cough, but this cough if present easily excited by dust, irritants, smoke, variations in the temperature of the air, by bodily exertions, change of position, etc., perhaps a little blood spitting, variations in temperature with some increase in the rapidity of the pulse—noting well that a subnormal temperature may have great significance—all point the way of eternal suspicion which is our most helpful guide.

For the examination the patient must be

stripped to the waist—no other examination is satisfactory. Having the patient face the light, we look for abnormalities of posture, development and expansion. A shoulder droop, a flattened supraclavicular or infraclavicular space, a limitation or retardation of motion of one side of the chest in deep inspiration as compared with the other or found on both sides, undue prominence of one clavicle, flattening of one shoulder group of muscles are all suspicious signs of parenchymatous trouble underneath. It is best to measure the expansion of each side of the chest individually, total expansion as usually practiced being almost valueless. In a right-handed man, for instance, a lesser degree of expansion on this side means much; for a left-handed, the reverse. We should determine by percussion the expansion of the bases of the lungs both anteriorly and posteriorly, marking them out, to be later checked by the fluoroscope.

Careful palpation does not always elicit the presence of cervical glands, though they should be looked for. Increased fremitus should always be noted, and if found early, is usually at the left apex.

In percussing, only the most delicate stroke reveals the earliest changes from normal resonance. Thus, too, is defined the outline of apical resonance which is associated with the name of Kronig, to whom is due great credit for his emphasis upon the value of the study of outlines of the apices.[3] Slight shrinking of the inner border of Kronig's resonance with some blurring of this border may be one of the earliest percussion findings—to be appreciated, these lines must be marked on the patient with some colored pencil, thus affording opportunity for definite measurement and comparison. Dullness when present is generally first manifested in the sternoclavicular angle, though some observers claim that it is first heard posteriorly just above the spine of the scapula. We usually find, however, a relative shortness or impairment rather than actual dullness, a note shortened in duration with diminished loudness. Since often there may be no percussion findings even in the hands of the most skilled, it is well to remember that Cornet[4] says: "Absence of dullness does not mean absence of disease." Thus far the examination has exacted no requirement of equipment or skill beyond any of us, though I confess that successful percussion is an art of which too few of us obtain the mastery.

Had Grancher not given to the world his classical work on the Diseases of the Respiratory Apparatus, none the less would his name have lived as long as auscultatory methods obtain for his insistence upon the *value* and *necessity* of single phase auscultation—examining inspiration and expiration separately. We know that the earliest breath changes from the normal in tuberculosis are heard in *inspiration*, and for these to be appreciated there must be careful and comparative study of this element alone to the exclusion of the attempt to hear expiration or adventitious sounds. The variations in breathing in tuberculosis are known to you all; granular, feeble with prolonged expiration, cog-wheel, broncho-vesicular, etc. I shall not attempt the enumeration of them all nor the order of their development. Thanks to Minor,[5] the term *granular breathing* is coming into popular use and recognition, which is important since it expresses, perhaps, the first definite evidence of parenchymatous trouble. In granular breathing, the impression the ear gets, to use Grancher's phrase, is that "of a column of air which glides with rubbing over an irregular and narrowed surface." Above all, it is essential to recognize these changes from the normal breath sounds, if possible, before they are accompanied by adventitious sounds. We should not forget, however, that the phenomena we hear do not necessarily mean tuberculosis alone, but that they reveal changes in the pulmonary tissue. It is their *persistence, localization* and *association with other symptoms* that give them so great diagnostic significance.

The interpretation of findings is not as difficult as it seems if we have spared no pains in our carefulness thus far. Breath changes are

most frequently heard over those areas where the most delicate percussion has revealed some change from normal resonance; the whispered and spoken voice may add their testimony, giving possibly the earliest evidence of changes in density of the lung tissue, and should never be omitted from the examination. If adventitious sounds are heard, their persistence and location, as well as the time of their appearance in the breath excursion, complete the diagnosis. Though time forbids a discussion of the rales so commonly found in tuberculosis, their presence determines the progress of the case beyond incipiency in the minds of those who have given the disease the most study—and yet, how many of us are willing to convict without them?

Throughout the examination we should be especially suspicious of the sites of election which tuberculosis chooses, to-wit: the supraclavicular fossae, the suprascapular regions, the subclavicular regions, the interscapular region about the level of the fourth dorsal vertebra, and the area internal to the angle of the scapula, in frequency about as in the order named.

No examination is complete without careful inspection of the throat with a laryngeal mirror—a procedure so easy of skillful acquirement that none of us has any excuse for not becoming efficient in it. Though it is rare that the first evidence of tuberculosis is found here, still we cannot afford to neglect it.

The X-Ray is also invaluable both fluoroscopically and radiographically, though perhaps only a small percentage of general practitioners are able to avail themselves of this aid. Since it requires great skill and experience to interpret properly radiographic work, especially in incipient tuberculosis, a word of caution may not be amiss.

Of the tuberculin tests, the subcutaneous is the test *par excellence* where there is no fever, a focal reaction (as evidenced by signs of activity in the center of suspicion), bespeaking active disease, while a febrile reaction alone, unless obtained with the initial small dose, implies a high tuberculin sensitveness and consequently almost certain probability of active tuberculosis. Failure of the subcutaneous test is definite evidence that no active disease exists in practically 90 per cent of cases. Of the examination of the sputum for bacilli and elastic fibres nothing need be said, as this is, of course, a routine procedure, though it is well to repeat that only 35 per cent of incipient cases show bacilli in the sputum. I have written elsewhere[6] of the value of the albumin reaction in the sputum—as yet I do not feel that we can place a great deal of diagnostic dependence upon it.

It is not within my province in this section to give the complete physical diagnosis of early pulmonary tuberculosis, but I trust I have pointed out the essential features of the way it may be done. Early and eternal suspicion, a complete history, a careful examination, an unwillingness to be satisfied with unmeaning terms, such as the "grippe," "indigestion," "neurasthenia," etc., which serve but as cloaks for our ignorance or carelessness, a willingness to convict upon evidence of the sum total of numerous details no one of which is diagnostic, but the aggregate of which is convincing evidence to the trained observer by reason of numerical preponderance, and ever-increasing skill in physical examination—these are the paths which lead to the goal of the early recognition of pulmonary tuberculosis.

Nor should there be any hesitancy upon the family doctor's part in seeking expert advice in tuberculosis. He does not hesitate to avail himself of the advice and services of the surgeon in appendicitis, so why should he feel any reluctance in calling in the expert in tuberculosis?

It is axiomatic that all things else being equal, a patient's chances of recovery from pulmonary tuberculosis are in direct proportion to the earliness with which the condition is recognized and treated; in geometrical ratio is the danger to the community lessened by the proper care of the tuberculous case before it reaches the open stage. So we cannot wait,

but must be ever suspicious. Where possible, we must save the child from his parent, for here is where the seeds are sown in the large majority of cases. This can be done successfully only by early discovery. Late diagnoses have only two rational explanations: First, delay on the patient's part in seeking advice from the doctor, and, second, delay on the doctor's part in making the diagnosis or fear of announcing it when made. Which shall it be, our responsibility or the patient's neglect? It is easier to put out a fire before it has gained headway than after it has become a conflagration, but it is so much easier to put out the little blaze that started the fire.

BIBLIOGRAPHY.

1. A. Newsholme: The Causes of the Past Decline in Tuberculosis and the Light Thrown by History on Preventive Measures for the Immediate Future. Transactions of the Sixth Internat. Congress on Tuberculosis.

2. Lawrason Brown: The Early Physical Signs of Pulmonary Tuberculosis, The Medical News, October 15, 1904.

3. Kronig: Zur Topographie der Lungenspitzen u.s.w., Berliner klin. Wochenschrift, 1899, No. 37; 1900, No. 20.

4. G. Cornet: Tuberculosis and Acute Miliary Tuberculosis, in the Nothnagel Encyclopedia of Practical Medicine.

5. C. L. Minor in Kleb's Tuberculosis.

6. C. H. Cocke: Albumin in the Sputum in Tuberculosis; Its Value in Diagnosis and Prognosis, Amer. Journal of the Med. Sciences, November, 1914.

THE SIGNIFICANCE OF THE VON PIRQUET TEST.*

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Ever since 1907, when von Pirquet announced his discovery of the reaction which bears his name, this test has been charged with a great variety of interpretations and implications. Indeed, the technique of the test has so many variants and the literature on the subject has reached such amazing proportions, that one is baffled by the conflicting results that have been obtained and is tempted to discredit the importance of a procedure which is apparently so complicated and whose significance seems so obscure. It is not surprising, therefore, that the test is infrequently applied by the profession generally. I believe, however, despite the discrepancy which exists between the results of different observers, that the von Pirquet test has a wider field of usefulness than it has been accorded.

Von Pirquet, it will be remembered, found that the reaction occurred in but a small proportion of infants, but that with advancing years it became more and more frequent, so that at the age of ten about 70 per cent of the children tested gave a positve reaction.[1] Almost no adults gave a negative reaction. The large percentage of reactions in older children without symptoms was in striking contrast to the infrequency of reactions in the first year of life, in which nearly all infants who reacted presented definite symptoms of tuberculosis. The occurrence of the reaction not only in those suffering with clinical tuberculosis but in those apparently enjoying good health as well, at once raised the question as to the value of the test; what significance has it if the tuberculous and the well alike give a positive reaction? The significance[2] of a positive reaction is, of course, *not* that we are dealing with a case of tuberculosis in the usual sense; it indicates only a previous infection with tubercle bacilli. More properly, it is a test for tuberculosis antibodies only, for infection might be present, and the reaction negative owing to the absence of tuberculosis antibodies.

As infection with tubercle bacilli is uncommon in early life, and as infection so regularly develops into clinical disease during this period, it was concluded, as the result of the experiments of von Pirquet, that a positive reaction to the cutaneous test is of the greatest diagnostic significance during the first two years. It was believed, however, as the percentage of reacting children increased so stead-

*Read in Section on Medicine, Southern Medical Association, Eighth Annual Meeting, Richmond, Va., November 9-12, 1914.

ily with succeeding years, that a positive reaction in the later years of childhood was an evidence of "latent disease" only. It received scant recognition, therefore, and after the age of two a negative reaction was alone considered of definite value, this being looked upon as strong presumptive evidence of freedom from tuberculosis.[3]

One does not question the figures of von Pirquet, and other observers have gotten similar results. Jacob found the test positive in 30-40 per cent of village children. Since the test first came into vogue, however, our ideas as to its frequency and its meaning have suffered some changes and as a result of more recent experiments it seems not improbable that the scope of the test may be so enlaregd that it will not only be diagnostic in infancy, but that it may be made to play a part in the prevention of tuberculosis, that is, of clinical tuberculosis.

The more recent figures are of interest in that the percentage of reacting children is smaller than in the series of von Pirquet. Thus, Shaw and Laird[4], performing the cutaneous test on 330 children in orphan asylums, found the average of positive reactions to be 28 per cent, increasing from 2½ per cent under 2 years of age to 45 per cent between 6 and 14. While Sachs,[5] experimenting on children of tuberculous parents, obtained a positive reaction in 49 per cent between the ages of 7 and 14, reaching 60 per cent between 15 and 20, and 73 per cent above the age of 20. More striking are the figures recently published by Wachenheim,[6] who made the test on 100 children of the East Side of New York, the greater number of whom were of Jewish extraction. Twenty children clinically tuberculous all gave a positive reaction. The remaining 80 were all suspected of tuberculosis because of chronic cough, impairment of general nutrition, or some other suggestive sign. Although the reactions increased with age, the percentage in this series is much lower than one would expect. Thus, 24 children under 6 gave no positive reactions, in 36 cases between 6 and 9 there was a percentage of 5.6, while 20 children 10 and over had only 15 per cent positive reactions. While admitting the racial feature as a possible explanation for the low figures obtained, Wachenheim concludes that on the East Side, at least, "most children that look tuberculous are free from the disease; their condition is due to other and less serious causes."

My own figures, because of the small number tested, have but little weight. I was surprised, however, at the infrequency of positive reaction. Thus, of 36 children tested, 8 were under 7 and were all negative. Twenty-eight between 7 and 14 gave eight reactions, or a percentage of 28.

The disparate results obtained by various writers are not easily explained, although von Pirquet admitted that his figures were probably higher than those of other cities on account of the tests having been all made on children of the poorer classes, these children being infected at an early age because of the prevalence of tuberculosis among the parents. At any rate the frequency of infection would naturally be greater among institutional children, in hospitals and among the poorer classes generally, especially in tuberculous families, and before we can arrive at a general estimate of infection we need data which will include all classes.

Some discrepancies must be attributed to differences in technique[7] and to lack of agreement as to what constitutes a reaction. It is unfortunate that as yet there has been no uniformity in the application of the test, or rather there have been proposed so many modifications of the original procedure that it is not always permissible to compare the results of one observer with those of another. How far the different methods of scarifying, the depth of the abrasion, the concentration of the tuberculin used—how far these effect the results have not been definitely determined. For this reason the test should be standardized—the undiluted tuberculin should be used and a uniform method of scarifying—preferably with

the von Pirquet scarifier—should be employed. The skin of the forearm after being sponged with ether is scarified through a drop of tuberculin just sufficiently to obtain a moist pink hole without drawing blood. A drop of glycerine is used for the control. The typical reaction which begins after a variable latent period of from a few hours to several days is easily recognized and consists of a papule usually reaching to 10 mm. (2-5 in.) in diameter and attaing its maximum size in forty-eight hours, after which it decreases in size. In an intense reaction the inflammatory area may be 20 (4-5 in.) or 30 mm. (1 1-5 in.) in diameter. In order to avoid overlooking a reaction the patient should be seen twenty-four and forty-eight hours after the test has been performed, for at times there is seen the "early" or "premature" reaction with a latent period under twenty-four hours, at other times a delayed or "sluggish" reaction, beginning after the lapse of twenty-four hours. The normal traumatic reaction shows itself only as a slight redness at the end of twenty-four hours, but in order to be on the safe side von Pirquet has advised that all reactions below 5 mm. (1-5) in diameter be considered doubtful and the test repeated. Petrushky regards a doubtful test as positive if on the second trial the reaction is more marked, and while some claim that a negative reaction may become positive on some subsequent repetition, most authors regard a second test as final. Riviere thinks that a negative result after two attempts is a valuable proof of the absence of tuberculosis.

We are stilll in the dark both as to the conditions responsible for varying degrees of reaction, and as to the proper interpretation of these reactions, although it is evident that there are two factors concerned in the production of sensitiveness, "a sufficient call on the defensive mechanism, and the power of active response."[8] Thus, it has been noted by some that the more latent the tuberculosis, the more concentrated must be the tuberculin to cause a positive reaction. As the result of the employment of dilutions of tuberculin, it has, however, not as yet been possible to differentiate active and latent disease except to a limited degree, although it does not seem impossible that in the near future we may be able better to interpret the varying degrees of sensitiveness met with.

The power of response is a variable factor; some areas of the skin are more sensitive than others, the back more so than the arm. Again, it has been noted that during an attack of measles the reaction is negative, although tuberculosis is present, also that response to the test is absent in cases of advanced tuberculosis and when the patient is moribund. Von Pirquet says that sluggish reactions are more often encountered in older children, especially clinically unsuspected cases, that they are seldom met with in those manifestly tuberculous. The explanation that has been offered is that an active lesion causes the specific antibodies to circulate in large quantities in the blood, combining quickly with the tuberculin, while in a latent lesion the antibodies are fewer in number and it takes longer for a sufficient number to be produced and to combine with the tuberculin introduced.[9]

We are unable, at present, to account for the difference in the character of the reactions nor are we able to reconcile the various estimates as to the frequency of positive reactions. On one point, however, all are agreed, viz: that tuberculous infection increases with years. Stoll,[10] as a result of tests performed on a hundred odd children in orphan asylums, noted that those who gave a positive reaction were, on the average, eleven months older when admitted, than those who did not react; in other words, the extra year spent in their homes increased the chance of infection. He also found that when several children from a family in which tuberculosis was known to be present were admitted, "it was almost invariably the youngest, or the one earliest removed from the home, that escaped infection."

With the recognition of this increasing infection and also of the relation which exists between infection in childhood and clinical

tuberculosis in later years, it follows that if we detect the presence of infection and treat the child accordingly, we shall have made a great stride in the prevention of clinical tuberculosis, or disease. Here, then, is the applicability of the cutaneous test: to detect the presence of infection at the earliest possible moment, and to this end the employment of the test annually (as advocated by von Pirquet) would contribute in no small degree.

The value of the test will vary, of course, at different ages. It is evident that in the very young infection cannot have existed long, and that as the child grows older there will be a greater number of latent infections—infections which never have caused trouble and the majority of which, perhaps, will not be productive of symptoms in the future. Stoll thinks that "a reaction in a delicate child is a sign of grave import, and means 'watch out,'" while Miller and Woodruff[11] have said that although "every case reacting to the local tuberculin test does not require the same treatment as a case of tuberculosis, it should be kept under careful observation." At exactly what age the reaction ceases to have a definite value cannot be said positively. Baldwin[12] thinks it of diagnostic importance up to the age of 10. "It is likely that the child should be treated or at least watched," he says. "If no symptoms have appeared before the test is made and the test is positive, it may be said without doubt the child has not had tuberculosis long. . . . The tuberculin reaction in children is, therefore, of great value and must not be ignored."

Wachenheim's reliance on the test is unqualified. He thinks that there is no reason to assume that in reacting cases the tuberculous infection is obsolete or even arrested, and is of the opinion that "a positive reaction should be regarded as an important danger signal, as evidence that a tuberculous process is either still active, or likely to become active at any time, and never to be carelessly dismissed as a mere relic of a past and gone infection."

Such are, in brief, the views of the more recent writers. They leave little doubt in my mind as to the significance of the von Pirquet test, and while I realize that in this short paper I have only scratched the surface of the subject, I believe that, as an embodiment of the different points I have tried to bring out, the following conclusions are justifiable:

(1) That a positive cutaneous reaction is less frequent in children than it was once thought to be, the high percentage of reactions obtained being due to the application of the test chiefly to infected children of the poorer classes, and

(2) That therefore a positive reaction is of greater significance than it is commonly supposed to be.

(3) That while there is an increasing percentage of reactions with advancing years, and a corresponding decrease in the value of the reaction, the view usually held that the reaction has significance only during the first two or three years of life is not borne out by recent figures, and that we should be suspicious of a reaction occurring up to the age of 10.

(4) That annual tests be instituted in the effort to detect early infection, and that, bearing in mind the fact that many if not most cases of clinical tuberculosis in later years are due to renewed activity of old foci, we should seek by proper means to prevent the development of "infection" into "disease."

(5) That a negative reaction, negative on repetition of the test, is valuable evidence of absence of tuberculosis unless the child be suffering with advanced disease or acute disease, especially measles.

(6) That further study of the test is necessary before we can fully interpret the reactions, and that, in the future, it is possible that refinements of technique may enable us to determine, with greater accuracy, the recency of the infection.

BIBLIOGRAPHY.

[1]Von Pirquet. The Frequency of Tuberculosis in Childhood. Tr. Internat. Con. Tub., 1908.

[2] Diseases of the Lung and Pleurae, p. 501. Powell and Hartley.
[3] Hamman and Wolman. Tuberculin in Diagnosis and Treatment, p. 126.
[4] Shaw and Laird. The Diagnosis of Tuberculosis in Young Children. Tr. Nat. Ass. Prev. Trt. Tub., 1909.
[5] Sachs. Children of the Tuberculous. Tr. Internat. Con. Tub., 1908.
[6] Wachenheim. The Diagnostic Value of the v. Pirquet Test. Am. Jour. Dis. Chil., June, 1913.
[7] Sachs. The Diagnostic Value of Local Tuberculin Reactions. Tr. Nat. Ass. Prev. Trt. Tub., 1910.
[8] Riviere. The Early Diagnosis of Tubercle, p. 111.
[9] Pottenger. Tuberculin in Diagnosis and Treatment.
[10] Stoll. The School Child and Tuberculosis. Tr. Nat. Ass., 1910.
[11] Miller and Woodruff. The Occurrence of Pulmonary Tuberculosis in the Children of Tuberculous Parents. Tr. Inter. Con. Tub., 1908.
[12] Baldwin. The Diagnostic Use of Tuberculin. Tr. Nat. Ass., 1912.

STATE POLICY IN THE MANAGEMENT OF TUBERCULOSIS.*

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TUBERCULOSIS AS A STATE PROBLEM.

In the day of its last judgment a state board of health must stand or fall by what it has done for the state's death rate. This fundamental responsibility belongs to the state board of health and cannot be shared with the subsidiary boards of health of the counties and municipalities, for the general death rate of a state is beyond their sphere of influence. It is then the duty of the state board of health to circle this central point of its activity, to consider its general death rate from all sides preliminary to finding its direct course through the adoption of definite state health policies. Such an examination of the general death rate would show it to be divided into two main parts—the non-preventable and preventable death rate; the latter rate, the preventable death rate, to consist of factors of varying importance, some of such minor importance as to be negligible and some of such major importance as to deserve to be kept as a fixed and guiding point ever in the mind of the health officer. Of these major factors in the preventable death rate, tubercuolsis stands preeminent. This one disease causes one-fourth of the entire preventable death rate. This one disease offers the state board of health one-fourth of its total opportunity. This one disease places upon the board of health one-fourth of its entire responsibility. No state board of health can leave or delegate so great a responsibility to the weaker and, in this particular matter, ineffectual and irresponsible subsidiary boards of health of the counties and towns. Tuberculosis is therefore clearly and distinctively a state health problem of such magnitude as to call for a definite and comprehensive state policy for its control.

*Read in Section on Medicine, Southern Medical Association, Eighth Annual Meeting, Richmond, Va., November 9-12, 1914.

THE STATE'S ABILITY TO BEAR THE BURDEN OF TUBERCULOSIS.

The burden of responsibility for controlling tuberculosis having been acknowledged as belonging primarily to the state, the first question is, can the state bear it? This question resolves itself into a consideration, first, of the financial strength of the average state, and, second, the weight of the burden. I found it difficult to find just what is the annual income of the different states of the union and therefore what is the income of the average state. The best we can do under the circumstances is to make an intelligent guess. The World's Almanac says that North Carolina in wealth is the twenty-first state in the union. The annual income of North Carolina is $3,000,000. We shall probably be safe in assuming, therefore, that the average state of the union has an annual income of between $3,000,000 and $4,000,000. Out of this limited revenue the state must pay the multiple and necessary expenses of the government, which no one can truly appreciate without looking over a state auditor's report. So much then for the abil-

ity of the state to carry the burden of tuberculosis.

THE WEIGHT OF THE BURDEN.

In the average state of the union there are 10,000 visibly active cases of tuberculosis; from 2,000 to 4,000 of these consumptives will die for lack of proper treatment if left dependent upon their own resources; recent investigations show that the average cost a day per patient in the average sanitoria of the United States is $1.66; the 2,000 to 4,000 consumptives of the average state treated in sanitoria would therefore cost the state each day from $3,320 to $6,640, or for the year $1,211,800 to $2,423,600. On the principle that wholesale prices are cheaper than retail prices, on the principle that the state in one large sanitorium could give this treatment at a much lower figure, we may for the purpose of this paper conclude that the above figures could be reduced to between $750,000 and $1,500,000 a year. Even then the problem of tuberculosis would cost the state one-fourth of its entire income. Evidently the state cannot bear the burden of tuberculosis in this form.

Changing the burden, we may think briefly of a combination of sanitorium and dispensary such as the state of Pennsylvania maintains out of its annual income of $28,000,000, which is seven to nine times that of the average state. Any clearly defined, comprehensive policy of this kind for a state to deal with tuberculosis will likewise be found to impose a burden with which the average state with its limited income cannot get started. I repeat the expression, "cannot get started."

Once more, a purely educational propaganda against tuberculosis is too diffusive a remedy, not specific enough and far too weak in its effect to be depended upon solely for treating so grave a state problem as tuberculosis.

In conclusion, it appears that the burden of tuberculosis is too heavy in undivided form for the state to bear.

DIVIDE THE BURDEN.

A burden that cannot be carried undivided, in bulk, by a single agency, a man, a horse, a car, a ship, a ship of state, can be easily carried when divided among multiple agencies. While the average state cannot herself carry her burden of tuberculosis, she can have it carried. The state can divide the burden into many parts; the state can carry the larger part, a part large enough to encourage by her example the co-operation and assistance of all the political, fraternal, religious, business, social and insurance organizations within her realm; she can correlate and direct the co-operative efforts of these multiple agencies and so bring to bear concerted attack all along the retreating line of the greatest enemy of the race.

In order that the burden be properly divided and apportioned, in order that we may understand just what it consists of, in order that we may effectually appeal with *definite facts and figures* to the various possibly co-operating agencies, we must have a state law requiring the reporting of tuberculosis to a central office on a suitable blank form. These report forms would furnish such information as to enable the central office to say just how many cases of tuberculosis there were in each county, how many tuberculosis cases were members of the Methodist Church or the Presbyterian Church, how many tuberculosis cases were members of Masonic lodges, etc., and of these tuberculosis members how many were incipient, how many moderately advanced, how many advanced, how many self-supporting, how many carried insurance, in what companies and how much, and other pertinent facts. Of course, a law of this kind would not enforce itself, but the appropriation for the enforcement of this law to the extent of securing 75 to 80 per cent of the visibly active cases of tuberculosis in the state is hereinafter provided.

Having properly grasped and apportioned the tuberculosis problem, the following plan of attack is proposed. This consists of two

parts: A co-operative sanatorium and a correspondence school of tuberculosis.

THE CO-OPERATIVE SANATORIUM.

Construction: This is feasible and possible on the following budget: For two years an annual appropriation of $30,000; for the next two years an annual appropriation of $40,000; for the next two years an annual appropriation of $50,000. This appropriation at the end of two years would provide a sanatorium of 100 beds, at the end of four years a sanatorium of 250 beds, and at the end of six years a sanatorium of 500 beds, which would be capable each year of caring for about 1,000 of the state's incipient and moderately advanced consumptives, or about one-tenth of the consumptive population of the average state. The source of the construction funds would be state appropriations. The state builds the sanatorium.

Maintenance: To give the patients the proper treatment and in addition to leave a surplus of from $8,000 to $10,000 annually for the work of the correspondence school, as hereinafter described, the following budget may be accepted as a safe estimate: For the first two years, operating with 100 patients, $60,000 annual income (not appropriation), which would allow a *per capita per diem* of $1.64; for the next two years, with 250 patients, an annual income (not appropriation) of $130,000, which would allow a *per capita per diem* of $1.42; and for the next two years, operating with 500 patients, $225,000 annual income, which would allow a *per capita per diem* of $1.23. So much for the necessary amount of maintenance fund. Now for its source.

The following co-operative agencies will contribute the above maintenace budget: Patients, political organizations, including the state, county and municipal governments; fraternal organizations, including the Masons, the Odd Fellows, the Knights of Pythias, the Junior Order and other orders; religious organizations, including the various denominations and certain individual churches; business organizations, including our large corporations, particularly cotton mill settlements, social organizations, especially women's clubs, and lastly insurance companies. In this connection it is important to remember that in approaching each one of these co-operative agencies for financial help the state authorities are enabled under the law requiring the reporting of tuberculosis to appeal to each agency with an exact statement as to the number of cases belonging to it, the stage of their disease, and their ability to secure treatment; or, in other words, in going before the grand lodge of Masons we could give the approximate number from actual reports, the names if necessary, of consumptive Masons in the state, the number of these Masons in the incipient stage of the disease and the number dependent upon outside help for proper treatment. We could make a specific appeal on a basis of exact facts to each one of the multiple co-operative agencies.

An important principle that the co-operative agencies would be asked to recognize, in making their contributions to the maintenance fund, is to make their appropriation of such an amount and with such conditions as to encourage *further* contributions from other sources. For example, the state furnishes a sanatorium and contributes a sufficient amount to its maintenance to bring its advantages *not to,* but easily within the financial grasp of the Masonic order of the state; the grand lodge, having had its attention called to its needy and deserving consumptive brethren on the one hand, and to the advantages and comparative cheapness of treatment in the state sanatoria on the other hand, contributes $500 or $1,000 annually for the treatment of consumptive Masons in the state institution, making a condition for obtaining the grand lodge assistance that the consumptive Mason applicant for sanatorium treatment shall obtain a part of the fund for his treatment from his own local lodge, thereby securing a material and trustworthy endorsement by the local

lodge of the applicant and, at the same time, extending the financial assistance of the grand lodge. In this way the grand lodge will make possibly an appropriation of from $750 to $1,500 a year by itself contributing from $500 to $1,000. We may now consider briefly the possible roles in our co-operative scheme of

THE VARIOUS CO-OPERATIVE AGENCIES.

(a) The state will equip the sanatoria and will make the following appropriations for maintenance: For the first two years, $30,000 annual appropriation; for the second two years, $40,000 annual appropriation, and for the last two years, $50,000 annual appropriation. The total cost to the state then of this instituion, the cost for both construction and maintenance, for six years will be: For the first two years, $60,000 annually; for the next two years, $80,000 annually; for the next two years, $100,000 annually, and thereafter, unless the institution is enlarged, $50,000 annually. Certainly the average state can afford this amount for an effectual fight against tuberculosis, and this amount will, in my judgment, and according to North Carolina's limited experience with the plan, prove sufficient to enlist the co-operative activity of the various organizations above mentioned.

(b) Many patients who could afford to pay their pro rata part of the maintenance of the institution over and above that part of the maintenance covered by the state appropriation would contribute to the sanatorium something like $1 a day for treatment. In making it possible for patients to obtain proper sanatorium treatment at such a figure, that is, at about one-third the cost of sanatorium treatment in private sanatoria, the state brings the sanatorium *not to* but within the financial grasp of a large number of its citizens who would otherwise die for lack of proper treatment.

(c) The political units of the state, the counties and towns, would be asked to endow from one to ten beds in the state sanatorium at a cost of from $365 to $3,650 a year, where from two to twenty of their needy and deserving consumptive citizens could be sent by the county or town authorities for proper treatment; or perhaps better, the counties and municipalities would be asked to set aside an annual appropriation for such a purpose, which appropriation would be available, except under exceptional circumstances, to citizens of the county or town, who themselves would pay part of their treatment, or for whom a part of the treatment would be paid by some organization, fraternal, religious or social, of which the applicant was a member. This is, as you see, the principle of making feasible but not giving away the treatment, the nest egg principle applied by the county.

(d) The fraternal orders, as I have already indicated in the illustration of the co-operation of the grand lodge of Masons and the local lodges, would accept their part in the state's campaign by making appropriations or endowing beds for their members at the sanatorium.

(e) The various religious denominations and certain strong individual churches can be effectively appealed to for partial or full support of their members.

(f) Large corporations, and especially mill settlements, as we all know, are now taking an active interest in health matters. It can be pointed out to these corporations that the co-operative plan of caring for their consumptive employes proposed by the state is to their interest.

(g) Various social organizations, particularly women's clubs, can be induced to contribute or to secure contributions to defray part of all of the expenses of needy and deserving consumptive citizens of their organization or community that would be referred by the correspondence school to them for treatment.

(h) Insurance companies may be interested in securing the treatment of policyholders.

CORRESPONDENCE SCHOOL.

To repeat, the correspondence school is

maintained out of the maintenance funds for the sanatorium and will probably cost from $8,000 to $10,000 a year. The functions of the correspondence school are three: First, to receive the reports of the cases of tuberculosis in the state under the law requiring such reports to be made; in other words, to get into personal touch with from 6,000 to 8,000 of the 10,000 consumptives in the average state; second, to bring together the needy incipient and moderately advanced consumptive case and the organization of one kind or another that has an interest in the case; and, third, to matriculate all cases of tuberculosis reported (not in the sanatorium) as members of the correspondence school, and with these matriculates to develop an educational course, through intelligently sympathetic, unofficious letters with all evidence of circular form and multigraph disguised in their strong personal flavor, that will teach them how to live and let live. Moreover, the correspondence school could issue a regular bulletin for distribution to its matriculates.

THE ADVANTAGES OF THE COMBINATION OF CO-OPERATIVE SANATORIUM AND CORRESPONDENCE SCHOOL.

First: Neither could accomplish the reduction in the tuberculosis death rate of a state on the same appropriation that will sustain both agencies. The sanatorium cannot expect to reach, at least for a number of years and except in a very indirect way, more than one-tenth or one-fifth of the consumptive population of a state. The correspondence school would probably reach the majority of the consumptives in a state, but a purely educational attack on tuberculosis, as we have already indicated, is too weak in proportion to the magnitude of the problem.

Second: The combination of sanatorium and school is of mutual advantage, the one developing the other. The sanatorium provides out of its maintenance funds a small percentage that can hardly affect its *per capita per diem* cost which will easily make possible an effective correspondence school, while the latter, in touch not only with the consumptives of the state, but with all the organized interests, political, fraternal, religious, business and social, with which the patient is in touch, will abundantly nourish a strong sanatorium.

Third: The combination of the two gives the state an educational organization analogous to the ideal system of education in operation in the state of Wisconsin. Our co-operative sanatorium in this system is the central university where about one-tenth of the consumptive population is treated and is taught what constitutes the right kind of treatment for consumption. These alumni, on returning home and seeing other cases not being properly treated, enable the sanatorium reflexively to improve the medical supervision of consumptives throughout the state. The correspondence school, an adjunct of the central university or sanatorium, puts the state government in almost personal touch with its entire tubercular population.

THE FEDERAL GOVERNMENT AND OUR TUBERCULOSIS PROBLEM.*

By G. M. Cooper, M.D.,
Clinton, N. C.

The activities of the Federal Government in the anti-tuberculosis movement have been comparatively limited. In the opinion of the National Association for the Study and Prevention of Tuberculosis this is possibly as it should be, because they believe that the problem is one more for local solution than otherwise. I do not for a moment doubt the wisdom of that opinion, which, of course, they have reached after years of experience.

The point I wish to emphasize in this paper is the fact that in the successful solution of all public health problems the local attitude is a tremendous factor.

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*Read in Section on Medicine, Southern Medical Association, Eighth Annual Meeting, Richmond, Va., November 9-12, 1914.

There is a multitude of agencies at work covering the whole field of public health activities—national, state, county, community, municipal and private, each having a different method of procedure. The question of coordinating all these agencies under the national government, wherein all may work along the lines of least useless resistance, in the pursuit of the same great ideal—service for the good of all the people. This question, it seems to me, is of vast importance.

If all local communities in this country were equally able to care for their tubercular indigent it would be better for the warfare to go on as it is. But we all know that such is far from the case. As an illustration: The state of North Carolina has a population of about two and one-quarter million. The state of Pennsylvania has a population of about eight million. In 1912 there were approximately 10,000 deaths from tuberculosis recorded in Pennsylvania. In the state of North Carolina (estimated by reports from its registration area) in 1912 there were approximately 6,000 deaths from tuberculosis. Three-fifths of the number of deaths with less than one-third of the population. Since 1906 the Commonwealth of Pennsylvania has spent more than $7,000,000 in its warfare on the disease. North Carolina has not been able to spend a quarter of a million in that time. Pennsylvania today has more than 1,500 beds free to the indigent. North Carolina has less than 100. The taxable wealth of Pennsylvania is more than ten times that of North Carolina. But the United States government derives more than one-third as much in revenue from North Carolina as it does from Pennsylvania. The magnificent work which the state of Pennsylvania is doing is surely worthy of the highest praise, and should be a source of pride to every citizen of that commonwealth. But, while other states like North Carolina would like to do more, and can and will do a great deal more in the near future, but few states are able financially to do things on such a complete scale. And this is certainly true of the Southern States, where we have the additional burden of such a high death rate from tuberculosis among our large and shiftless negro population. Under the direction of the United States Public Health Service a movement for the prevention of tuberculosis in the Philippines has already been organized. Under the same auspices the government is at present conducting a sanatorium at Fort Stanton for sailors in the merchant marine. The army and navy departments each conduct a sanatorium, one at Fort Bayard, the other at Las Animas. The government has also numerous schools and sanatoria for the Indians, among whom it has carried on an extensive educational propaganda.

One galling fact to us all is that most of the public health literature which is sent out by the government is sent from the treasury and agricultural departments.

Nothing short of a cabinet officer selected from either the Public Health, army or navy medical departments, to head the national portfolio of public health, will suffice for a beginning. The need of such a service is apparent even to the proverbial school boy.

Our government is a government of divided responsibilities, as it should be. The government exists only because of the people, and certainly should exist for the people. I do not believe in paternalism or too much centralized government, but I do believe that when a locality in one of our states has need of aid in the handling of so serious a problem as the care of its tubercular indigents, that aid should be forthcoming from somewhere.

And it is not paternalism to take four million dollars of the government money to establish a land bank in the Philippines, to build a thirty million-dollar railroad in Alaska, to give the national agricultural department a half million dollars to fight hog cholera, when they only asked for seventy-five thousand; to give the bureau of plant industry over three million when they only asked for a little more than two million—if, in short, it is not paternalism for Congress to appropriate $18,947,-

232 to the department of agriculture, as it has just done, I can't see wherein it would be dangerous or expensive to establish a national department of health, to benefit all the people all the time, just because a few patent medicine millionaires and one or two correspondent schools of optometry and osteopathy objected. But as yet the heart of our government beats in clearer response to the needs of the bureau of entomology than to the sufferings of that army of 160,000 who each year go down into the valley of the shadow of death from the great white plague.

The tuberculosis campaign is so closely allied with all public health work and has such a marked influence on the methods of all general public health activities, that whatever procedure is ultimately successful in reaching and helping the greatest number of people will be found to be measures advancing all phases of preventive medicine.

If it is a wise policy (and no one doubts it) to establish public health and marine hospitals in the large cities and seaports of the country, why would it not make for public health advancement throughout the whole country if this splendid service could be extended, on a modified scale, of course. The United States Public Health Service is an institution outside the realm of partisan politics and can be kept so. Why not make the county or the city, as the case may be, the unit of public health work, with the United States government at the head. There is not a county in the nation but has its home for the indigent, usually some large tract of farm land, ideal for the cheap establishment of open air schools and tent colonies for the treatment of cases of tuberculosis. Not a city but has its municipal hospital with ample accommodations for such work. But more especially do the rural sections of our country need the best services that money can provide, on account of the low status of anything approaching rural hygiene and sanitation. Whenever anything like an earnest effort is attempted to reach the thousands of incipient cases of tuberculosis among the poor, and to better the conditions of rural sanitation, it will be found that an efficient, hard working, whole-time county health officer must be the main stay of the work.

For that reason I submit the following plan:

Let all the medical profession, and public health forces of the United States, unite in a persistent demand on Congress that the cabinet office of secretary of public health be created. Let this department rank with the army and agricultural departments. After having thus established a permanent head to the public health affairs of the nation, with supreme authority to act for the best interest of the people in all matters concerning the public health, then let the National Public Health Service, through each state board of health, invite any county that desires to cooperate in its public health work. Let such county agree to pay one-third of all expenses incidental to the maintenance of an efficient whole-time health officer. Let the state board of health pay one-third and the national government the remaining third. Place the standard of requirement for the office very high, but let the local county government select the officer, subject to approval by the state and national health authorities before securing their co-operation. In this way you would have local self-government of an efficient character. Your health officer would have the aid of the diagnostic and administrative departments of both state and national governments. In an educational way—and this is of extreme importance—he would have the franking privilege of the mails to reach all classes of his citizens. In the handling of the tubercular the state and nation would be assisting and directing the individual counties in the maintenance of adequate open air schools for the children, and the tent colonies at the county homes for the patients, who would first spend from thirty to sixty days at the state sanatorium, where they would be taught the proper method of regulating their sleep, diet, etc., but who are not able to stay longer and who go

back home and again become a menace to others. Thus the state institutions, where established, would be enabled to reach three times the number of patients as at present. And most important, each county seat would be the center of a public health school, so to speak, where the great lessons of preventive medicine would be taught by example, and so plain that any who run might read. If this be paternalism, gentlemen, make the most of it.

TUBERCULOSIS SANATORIA IN THE SOUTH—STATE, COUNTY AND CITY.*

By Jno. J. Lloyd, M.D.,
Catawba Sanatorium, Va.

That sanatoria occupy a most important position in the campaign against tuberculosis can no longer be denied. The results obtained in well-conducted institutions are seldom equaled by any other form of treatment if patients occupying the same social status be compared. .

The sanatorium is able to accomplish good results for the following reasons:

First. Rest is enforced so long as symptoms remain active.

Second. Provision is made for and open air life is insisted upon.

Third. Proper food regularly served in abundance is furnished.

Fourth. The patient is placed in entirely new surroundings, thus affording complete change.

Fifth. The patient is under almost constant supervision and therefore can be more thoroughly taught the extreme importance of attention to details.

Sixth. Observing the progress of fellow patients has a salutary and stimulating effect upon the patient himself.

Rest, fresh air and proper food are the basis of modern treatment of tuberculosis and need no comment, and an entire change is universally recognized as beneficial in most diseased conditions.

It is the fifth heading above which I wish to emphasize particularly, viz: the educational value of the sanatorium. A careless consumptive is a danger to the community and necessarily an ignorant consumptive is a careless one. So long as cough and expectoration remain and scrupulous care is not used in covering the mouth during cough and in the disposal of the sputum, there is danger to the public with whom that patient comes in contact. It is no easy matter to teach a patient to automatically cover the mouth in coughing nor is it easy to prevent promiscuous expectoration—this is learned only after it has been ding-donged into a patient repeatedly.

We all know of instances where indiscretion in regard to exercise, etc., has been followed by serious results, and it is only through frequent repetition that patients learn to think first and act afterward.

If the sanatorium had no other claim than its educational one, it would seem that it is a paying investment in prevention alone, to say nothing of the benefit to the patient himself.

The per capita maintenance may be safely put at $11 per week or thereabouts. This is not a large outlay for the return and to furnish treatment at or below cost to all cases desiring it would be a good working motto for the South.

We might well profit by the experience of the more progressive states in the north. These are working along the general plan of providing sufficient accommodation for the early case in state sanatoria and for the moderately and far advanced in city or county sanatoria.

As it seems to be generally conceded that the sanatorium occupies such an important position in the fight, it might be of interest to see what the South has accomplished in this respect:

*Read in Section on Medicine, Southern Medical Association, Eighth Annual Meeting, Richmond, Va., November 9-12, 1914.

STATE	TOTAL POPULATION	STATE SAN. CAPACITY	COUNTY SAN. CAPACITY	CITY SAN. CAPACITY	SANATORIA CHILDREN	SANATORIA FOR NEGROES—CAP
Alabama	2,138,093	None. One contemplated	None	1—10. One contemplated	None	City—10.
Arkansas	1,574,449	1—110	None	None	None	None
District of Columbia	331,069	1—66 (132)	None	None	One ward for tuberc. Children in city hospital—Capacity 20	1—66
Florida	752,619	None. visiting nurses only.	None	None	None	None
Georgia	2,609,121	1—58	1—24	1—14, 1—100 City & County	None	1—60 County
Kentucky	2,289,905	None	1—80 4 being erected	1 closed at present—60 1—10	None	1—35
Louisiana	1,656,388	$10,000 Appropriated	None	1—40 1—40	None	None
Maryland	1,295,346	1—430 1—112	20 10 20	1—200 Advanced cases	1 for surgical tuberculosis—50 One ward at Sanatorium for children—25.	1—250
Mississippi	1,797,114	None	1—8	None	None	City Sanatorium, 1 contemp
North Carolina	2,206,287	1—100	None	None	None	1 capacity undetermined.
Oklahoma	1,657,155	None	None	1—100 Part for tuberculosis	None	None
South Carolina	1,515,400	$10,000 approp.	1—6	None	None	None
Tennessee	2,184,789	None	1—75	1-16 1-32 1-35	None	None
Texas	3,896,542	1—100	1—75 Five under construction	None	None	None
Virginia	2,061,612	1—161	None	1—34	1 Preventorium capacity 15 open part year	None
West Virginia	1,221,119	1—109	1—32	None	None	None
Total	29,187,006	1,221	360	691	95	421

From the above table we note that eight, or only one-half, of the sixteen states, including District of Columbia, have state sanatoria. Appropriations have been made for state sanatoria in two others.

The total capacity in state sanatoria at present being 1,221 beds.

Seven states have county sanatoria, exclusively for tuberculosis, with a total capacity of 360 beds.

Five have city sanatoria with a capacity of 691 beds.

Only two, Maryland and the District of Columbia, have made any provision for caring

for surgical tuberculosis and tuberculous children, with 95 beds.

One has a small preventorium run during the summer months for children of tuberculous parentage.

Only five have made any provision for caring for the tuberculous negro outside the prisons, insane asylums and poor-houses. These five states are Maryland with 250, District of Columbia with 66, Georgia with 60, Kentucky with 35, and Alabama with 10 beds, making a total of 421.

Two have no sanatorium whatever, Florida and Oklahoma.

For a population of 29,000,000, or thereabouts, we have a total capacity of only 2,803 beds in tuberculosis sanatoria in the entire South, so far as I have been able to ascertain.

Maryland, with a population of less than a million and a half, has 1,092 beds for tuberculosis—this number of beds is none too many for the needs, so we can see what a very small beginning the remaining Southern states have made. Many sanatoria for the early cases, but many more for the advanced, are badly needed.

To provide the opportunity for the early case to obtain the best treatment promptly, either free or at reasonable rate, is for economic reasons a paying investment for the state. The prognosis for improvement in the early case being, as we all know, good, a very large majority of these cases, if promptly treated, can, in a few months, be restored to full earning capacity.

On the other hand, the prognosis in the moderately and far advanced cases is very doubtful, and, in addition, the large majority of these cases require prolonged treatment in bed. For these reasons these cases are better treated nearer home, and should be provided for by the county or city until improvement in their condition would justify a transfer to the state sanatorium.

Undoubtedly the two phases of the tuberculosis question deserving most attention at present are the children who have been exposed to infection and the negro tuberculous.

It is a very generally accepted fact that childhood is the period when infection takes place in most instances. It is also believed that if children having had the exposure are placed in proper surroundings for a sufficient length of time they will overcome the infection and remain well. The erection of a suitable number of preventoria and open air schools would reduce the incidence of and mortality from tuberculosis for the next generation. This phase of the work has so far received very slight attention, but deserves our serious thought.

Tuberculosis in the negro of the South is not only a menace to the negro himself, but also to the white race as well. There are very few homes which are not to some extent dependent upon the negro—they nurse our babies, cook our food, clean our houses and wash our clothes, and as we all know, tuberculosis is frightfully frequent among the negroes. This is a most serious problem, the solving of which will reduce tuberculosis in the white race more materially than any other measure. The negro is grossly ignorant in all matters of hygiene, personal or in the home, and yet we have left practically untouched this grave menace to the health and life of the whole South.

Until ample provision is made for diagnosing and treating cases of tuberculosis in the negro, we cannot expect a great reduction in the incidence of the disease in the white people of the South.

The same arguments may be advanced for placing both the white and negro tuberculous in sanatoria, but owing to the gross ignorance of the negro race as a whole, it is even more vitally important to remove this source of infection from the home.

According to the figures of Dr. Fred L. Hoffman,[1] the death rate in 1911 for nine Southern cities with a white population of 1,458,507, was 150 per 100,000—in the same

nine cities with a negro population of 515,815 the death rate was 423 per 100,000—or to put it in actual deaths, there were 2,189 white and 2,183 negroes.

To quote from Dr. Hoffman:[2] "Reviewing the facts in brief, it may be stated here that in the Northern and Western cities of the United States the tuberculosis death rate since 1881 has declined from 325 to 160 per 100,000 of population, or 50.8 per cent. For the white population of Southern cities the rate has declined from 301 to 150, or 50.2 per cent, whereas for the colored population of Southern cities the reduction has been only from 668 to 423, or 36.7 per cent."

A half-hearted campaign for more sanatoria will be of little avail. We believe sanatoria to be necessary, but we must convince our state legislators and county boards before money is available for their construction. Let us hope in doing this that we will not encounter such an experience as is reported to have occurred in Steuben County, New York, recently—the county board refused to appropriate $1,000 for purchasing a site for a tuberculosis sanatorium, but at the same meeting appropriated $2,300 to be used in a dog quarantine because of a mad dog scare.

The tuberculosis question is a big one; in fact, the biggest the South has to face at present, and it must be met from every angle. The sanatorium is a powerful weapon for prevention from the fact that it isolates patients, but more especially because it teaches them about the means of preventing the spread of the disease. It is the most potent weapon for cure that we possess today, and if the South will adopt for its campaign motto, "Ample provision for all diagnosed cases of tuberculosis in both white and black," the story will be a very different one in another twenty years.

[1] Frederick L. Hoffman, "The Tuberculosis Death Rate, 1871-1912." Trans. National Association for Study and Prevention of Tuberculosis, 1913, pp. 128-129.

[2] Same as 1, page 116.

THE PLEURAL EFFUSIONS OF ARTIFICIAL PNEUMOTHORAX.*

By M. E. Lapham, M.D.,
Highlands, N. C.

At the Highlands Camp Sanatorium we have been treating pulmonary tuberculosis by compression of the lung for five years, and during this time we have had eighteen cases of artificial pneumothorax, complicated by pleural effusions, or twenty per cent of all our cases. In six of these cases the effusions were present before the attempt to compress the lung was made, and twelve developed as a complication.

In five of the initial pleurisies the effusions were divided into multiple collections by adhesions, and there was such marked irritability of the pleural surfaces that pleural reflexes were always imminent, making the attempts to inject nitrogen a formidable undertaking and contra-indicating the method. In two cases a certain amount of nitrogen could be injected without difficulty, but the distension of the pockets caused such violent reactions that the attempts had to be given up. In only one of the initial pleurisies was the effusion free in the pleural cavity, and in this case there was no difficulty whatever in completely compressing the lung and obtaining a good clinical recovery. For months there was no temperature, cough, or expectoration, and the patient was getting strong enough to walk and enjoy a good deal of liberty, when the pleural surfaces began gradually to fuse together, and the injections to be complicated by the needle filling with blood. Coincidently a tendency to pleural reflexes developed, which increased with each succeeding puncture, and the difficulty of getting into the pleural cavity without wounding a blood vessel finally became so great that we had to give up the at-

*Read in Section on Medicine, Southern Medical Association, Eighth Annual Meeting, Richmond, Va., November 9-12, 1914.

tempt. As the pleural surfaces fused together and the cavity became obliterated the clinical signs of tuberculosis of the lungs reappeared and the patient finally died, after having had her life prolonged two years by the method. We explain this failure as being due to an angiomatous development of the blood vessels of the pleura as described by Guyot-Bourg, which engorged the vessels and filled the needle with blood and fused the pleural surfaces.

Of the twelve cases of effusions associated with the artificial pneumothorax, and developing more or less in consequence of the method, four died and eight offer every reason for a permanent recovery. One death was caused by intestinal tuberculosis, one by a rapid extension of a tuberculous process in the other lung, one from a tuberculous empyema caused by a pulmonary fistula, and one from an operative fistula and empyema.

The deaths from intestinal tuberculosis and pneumonic processes in the other lung were unforeseen. At the time the attempts to compress the lung were made there was no suggestion of ulceration of the intestines, and in the other case the apex was only slightly involved. It is probable that the pressure of the nitrogen within the pleural cavity hastened the development of both these processes, but death was inevitable without help, as both were desperate cases far beyond the reach of symptomatic treatment. The third death occurred in a case that was typically illustrating the benefits of an artificial pneumothorax. The patient had been ill for a long time, with consequent exhaustion and apparent inability to recover. The right lung was badly broken down, the left slightly involved, the heart action very weak and irregular, and total loss of appetite and strength. As a result of months of successful compression of the lung, the patient was getting strong and the clinical signs of tuberculosis had disappeared, when suddenly and for no reason whatever, pain, chills and high temperature announced the advent of pleurisy, followed in a few days by an effusion containing a few lymphocytes, but sterile. After two months the effusion was absorbed and the patient seemed to be none the worse for the attack. Two months later the patient began light work, and after an injection of nitrogen noticed that she expectorated a mouthful of very thin, queer tasting fluid. The next time this happened the fluid was examined, and found to resemble the effusion. The patient was kept extremely quiet until one day, rebelling against the monotony of extreme inactivity, a long walk was taken, and that night began the expectoration of a thin, serous fluid which gradually increased in quantity and finally became purulent. Counter drainage relieved the distressing expectoration, but the patient finally died from exhaustion. It has been suggested that effusions may have an eroding influence and so favor the formation of a pulmonary fistula, but in this case it seemed possible that the lung in its shrinking had finally reached an adhesion which did not stretch but tore out the periphery.

The fourth death resulted from an operation for pneumolysis and plumbing. It was a case of incomplete compression of the upper lobe, which contained a small cavity which could not be obliterated because the periphery of the lung was held out by adhesions. At the time of compression the left lung was full of coarse, wet rales, and there was a large cavity in the second intercostal space. The lung was easily compressed, and the cavity obliterated, and thereafter for three months there was no cough, expectoration or temperature. Then severe pain in the distended side began, which persisted and was followed in about two weeks by a cough, scanty expectoration and a temperature of 101. After two more weeks the patient asked what the splashing sound in the left side meant. Below the third rib there was bulging of the intercostal spaces, hyper-resonance and no motion, with marked metallic clinking and complete absence of breath sounds. There was no dullness in the semi-lunar space and the X-ray

did not show any fluid, but splashing could both be heard and felt. The very slight amount of fluid in the semi-lunar space did not increase in quantity, but the pain, temperature, cough and expectoration produced a very bad effect upon the patient's general condition, which began to rapidly fail. Since the incomplete compression of the upper lobe had not retarded the marked improvement of the first few months, it did not seem to us that this incomplete compression could be the cause of the failure resulting after the pleurisy began, and we inferred that the separation of the pleural surfaces was disadvantageous in this case and an artificial pneumothorax undesirable, because it promoted the extension of tuberculous processes in the pleura. We argued that the tuberculous pleurisy was responsible for the increase of tuberculous manifestations and that the case was analogous to those reported by Sauerbruch, in which a tuberculous empyema complicated the artificial pneumothorax and prevented its usual success. In the cases of Sauerbruch's only a fusion of the pleural surfaces could arrest their tuberculous processes, and this fusion could only be obtained and the compression of the lung kept up by an extra-pleural thoracoplasty. We took the patient to a celebrated surgeon recommended by Sauerbruch for the performance of Sauerbruch's operation for an extra-pleural thoracoplasty but, unfortunately, the surgeon did not agree with our point of view. He saw no menace in the tuberculous pleurisy and denied the existence of the effusion because it was not revealed by the X-ray. He thought the failure to succeed with the artificial pneumothorax was due entirely to the incomplete compression of the upper lobe, and therefore preferred the operation of pneumolysis with plumbing according to Baer and Tuffier. Under local anaesthesia part of the second rib was resected, the lung freed from adhesions, and held firmly compressed by packing the artificially created space with paraffin. For three days the results justified the surgeon's choice, because there was normal temperature and freedom from cough, expectoration and pain. On the fourth day a chill and temperature demanded the removal of the packing and a large rupture into the pleural cavity was found with a huge quantity of purulent fluid. Counter drainage was made, but the patient died from exhaustion.

The relation of a tuberculous empyema to an artificial pneumothorax does not seem to be always the same. Forlanini began his work with a case of empyema of two or three litres, which could not have been drained by a single operation because of adhesions. This case made a brilliant recovery, and there are many cases reported equally successful. On the other hand, there seems to be another class of cases resembling those of Sauerbruch's in which the empyema is only overcome by obliterating the pleural cavity through a fusion of the pleural surfaces obtained by an extra-pleural thoracoplasty.

The eight remaining cases of associated pleurisies are all making good recoveries. One has been apparently well for three years, another for two, and another for one. In one case the effusion has persisted for eighteen months, and is now being absorbed, and the lung is re-expanding with good breath sounds. In another case the effusion persisted six months, and three months in another. These cases are doing well.

In three cases the fluid collected insidiously without causing any clinical manifestations and with no appreciable influence. These were cases characterized by a remote and weak first sound of the heart and inability to palpate the apex beat. These cases had been sick for a long time and the heart action was very poor. In two cases the effusion was in the right side, and we believe that myocardial insufficiency is responsible for these effusions. In two cases the fluid appeared directly after undue physical strain from walking, and Anders' remarks upon the frequency of myocardial hydrothorax seem to us perfectly applicable to this class of cases. If this proves to be true, the amount of physical strain a

patient can bear without inducing myocardial insufficiency will be an important feature of the treatment.

In six cases the effusions were associated with typical attacks of pleurisy, and were of an infectious nature. In one case chilling was responsible for the outbreak. This was an exceedingly frail and delicate woman with hardly enough energy to get through the day. When we began the compression there was high temperature, exasperating cough and profuse expectoration which were disappearing and being replaced by a little strength and appetite, when one winter's morning she went into the next room to have a little talk with a friend while her own room was being cleaned. It was only a very few minutes later that I found her there with nothing but a dressing gown over her legs, which had just come out of a warm bed, although there were two rugs within her reach. Horrified, I hurried her off to bed, she protesting vigorously that she was not in the least chilled, and tried with hot water bottles to prevent any harm, but it was too late, and the next day saw a fine case of pain and high temperature, followed a few days later by excessive prostration and an effusion. For three months it required the most careful nursing to overcome the disastrous effects of this careless exposure to chilling, and it was with the greatest difficulty that we could get the digestive processes going, because at times she absolutely refused to eat anything and could only be fed with a spoon. After six months the fluid was absorbed, but the lung did not begin re-expanding until a year. Today there are normal breath sounds over all the lung and the patient has gone home feeling better and stronger than ever before in her life.

Forlanini warns most emphatically against the danger of chilling and insists that these cases are like hothouse plants, requiring the most careful watching and protection.

A prominent feature of a second case was the gradual development of irritability of the pleura during the course of a typically successful recovery. This was a monolateral case of three years' duration that had been sent home to die because of a large cavity in the left upper lobe and complete infiltration of the lower. Three months of successful compression resulted in a typical clinical improvement, when the punctures began to cause pain, headache and slight rise in temperature. At first this irritability only lasted a few hours, but the signs gradually increased in gravity and eventually an effusion collected which superceded the necessity for any more fillings. Saugmann, Petteruti and others report the etiological relationship between the persistent, although slight, injury to the pleura caused by the punctures and the formation of effusions, and Brauns thinks that this is a reason for preferring a small to a large needle.

A second case of progressive irritability of the pleura developed after a large cavity in the upper lobe of the right lung had been successfully compressed for many months. The patient was in fine condition and making an ideal recovery when the punctures began to be followed by pain, temperature and general malaise. The irritability steadily increased and the reactions became so severe that the fillings had to be discontinued. Two months after the fillings had been discontinued the patient suffered a violent attack of dyspnoea, relieved by the withdrawal of 1000 c.c. of gas. This was repeated a few hours later, when the effusion had reached the middle of the scapula, and there were no other indications of pleurisy. In a short time the fluid was absorbed, and the patient is going back to work with normal breath sounds over all the lung.

A third case of progressive pleural irritability developed after several months of incomplete compression of the right upper lobe. This was a bilateral case with a large cavity, many adhesions, a weak heart and fine, wet rales in the other lung down to the fourth rib. Although the compression of the right lung above the third rib was incomplete, the signs of tuberculosis disappeared and clinical

recovery was rapid. Cough, sputum, temperature had all disappeared, and strength and appetite were good, when one day the introduction of the needle caused a slight loss of consciousness. The next puncture was still more unpleasant and the fillings had to be stopped. In a short time an effusion developed, which has persisted in small quantity without any apparent influence. The patient has gained twenty pounds in weight, the cavity is filling in, he is earning his living and doing a good day's work, and we look for a permanent recovery. The progressive irritability in this case may be due to making the punctures in the same place. On account of many adhesions and many enlarged blood vessels and several unpleasant results from punctures made in other regions, the patient insisted upon always having the punctures made in the same place, and although we use a small Forlanini needle, it may easily be that the pleura was injured by the persistent traumatisms, slight as they were.

Our five years' experience with artificial pneumothorax has led us to believe that the tendency to pleural effusions increases with the length of time the compression is maintained, because there is a tendency towards progressive irritability of the pleura in consequence of the punctures and the development of a nervous susceptibility. We have had three types of pleural effusions. Those developing without any clinical manifestations and no suggestions of any active process. The fluid collects insidiously, and may first be detected by the rise in pressure in the manometer, or by filling the needle, or be heard as a splashing sound by the patient. We call these myocardial effusions. A second class have developed in consequence of repeated traumatisms of the pleura, as a result of an acute infection such as an angina, or of chilling, or from other reasons commonly associated with ordinary pleurisies. We call these infectious pleurisies. A third class is due to tuberculous nodules and processes in the pleural surfaces, and these have seemed to us, in our cases, to have been favored by the separation of the pleural surfaces by the artificial pneumothorax.

Von Muralt and many others have described the singularly beneficial results of an effusion and regarded them as due to antibodies contained in the serum, or to mechanical influences, such as hydrostatic instead of pneumatic pressure. Forlanini has shown that some cases have improved after the formation of an effusion as never before, and there are many such cases on record. Our experience has not led us to wish for their occurrence. The effect upon the patient is to induce anxiety, discontent, loss of confidence, and fear of infection. The profound depression, loss of appetite and general bad effect makes us agree with Forlanini that they are a complication greatly to be dreaded and to be prevented in every way. The prophylaxis consists in a careful estimate of what the patient can stand in the way of physical efforts; in most watchful protection against cold winds and chilling of any kind; in avoiding any infection from stasis of the intestinal contents; in the slow and exceedingly gradual stretching of adhesions so as to avoid tearing the surface of the lung. A study of Vollhard's cases impresses one very keenly with the relationship of too rapid distension of the pleural cavity and the formation of empyemas due to the tearing out of adhesions or rupturing the surface of the lung over a sub-pleural focus.

Indirectly, prophylaxis consists in protecting the patient against any acute infection. No case of tonsillitis or bronchitis, or even an ordinary cold, should be allowed to come in contact with these patients.

After the effusion has occurred it is not withdrawn unless there are definite indications for so doing, such as dyspnoea, cardiac distress, etc. Then the pressure is maintained by introducing about two-thirds as much nitrogen as the amount of fluid withdrawn. Two needles are used, one for withdrawing the fluid, and the other for injecting the nitrogen. For the pain, temperature and cough the usual treatment for ordinary pleurisy is given.

In empyemas, the withdrawal of the purulent fluid has been followed by washing out the pleural cavity with lysol, or some preparation of iodine.

DISCUSSION OF THE SYMPOSIUM ON TUBERCULOSIS.

(Papers by Drs. Cocke, Frazer, Rankin, Cooper, Lloyd, Minor and Lapham.

Dr. W. S. Leathers, University, Miss.: In discussing this subject I think all of these papers are most excellent, but there was one paper read this afternoon that I think is particularly important at this time. During the last winter I had the good fortune to draw or to prepare a bill for establishing sanatoria for the prevention and treatment of tuberculosis for the legislature of Mississippi, and I found great difficulty in getting before that body a concrete plan which would impress them as business men. Of course, the question of tuberculosis will have to be considered from the standpoint of its broad aspect, dealing with the state, with the county, and also dealing with the federal government. One night I was standing in the lobby of the Capitol of our state and one of the legislators, chairman of the appropriation committee, came up to me and said, "Doctor, what are you going to do about the tuberculosis problem?" I said to him, We have a bill before the legislature for consideration, and we have a plan which consists in having country and district sanatoria for the prevention and treatment of this disease. The bill consists in having the county bear a part of the expense and the state to bear a part of the expense.

I was much interested in Dr. Rankins' paper because he presents a rather new phase for dealing with this problem. There is no problem in public health that has more aspects than that of tuberculosis. There is no problem, the solution of which presents more difficulties than this great problem. It is an environmental disease, and so many questions enter into the solution of it. Dr. Rankin discussed the relation of the disease to the death rate, indicating that in order for a department to maintain its dignity and sustain itself before the people of the state it must reduce the death rate of that state. I had that fact impressed upon my mind not long ago when this question was being considered by the legislature. A member of the finance committee of the legislature said to me, "Doctor, you have health work going on in this state?" Yes. "Have you reduced the death rate since you have been doing this work?" That was the most potent question during the meeting of the committee. They are watching every point, and I think Dr. Rankins' position is well taken. If we are going to reduce the death rate in a state we must take the preventable diseases from the standpoint of their relative importance in relation to the death rate, and begin upon those diseases the preventing of which will result most speedily in the reduction of the death rate. Very soon we will be held accountable for the reduction of the death rates in the respective states in order to get appropriations for public health work. The plan that has been suggested is a co-operative state sanatorium. I would carry it further and combine the plan which he suggests with that which Dr. Lloyd mentioned in his paper, namely, to have a co-operative sanatorium for incipient cases, that is, the curable cases, and then have county and district sanatoria for advanced cases. I think a combination of these can be brought about on a co-operative basis. By that combination we will have the co-operative idea, which is the best plan in all probability in dealing with this problem in our respective states. I think Dr. Rankin's position relative to the problem is well taken.

Dr. C. W. Stiles, Wilmington, N. C.: It is particularly Dr. Cooper's paper on the federal government and our tuberculosis problem that I have been requested to discuss. I would like to say that there are only two questions in the entire world: One is the potential question, "Can you do it?" the second is the financial question, "Have you got money to do it with." No matter whether you are engaged in paving streets, building roads, fighting tuberculosis, or anything else, those are the two fundamental questions that lie back of all of the other premises. Two gentlemen from North Carolina have appeared here this afternoon and have presented two totally distinct points of view in fighting tuberculosis. One maintains this is a state question and the other has at least inferentially maintained that it is a federal question that can be solved only by having a doctor of medicine in the President's cabinet.

I am not going to discuss the question of a federal department of health, or the advisability of having a law which restricts the President of the United States in the selection of his advisers. There are many legal question involved. I am not going to discuss the postal law which comes up in connection with the question of whether we can place the government frank at the disposal of the county health officer. Here again are many complicated and legal questions. I am going to bring out this point, that the function of the federal government is under the present law somewhat restricted when it comes to fighting tuberculosis, but I cannot concur in the idea that the federal government is doing very little on this problem. Let me remind you of the fact that every pound of meat that goes into the interstate trade has been inspected by the Department of Agriculture for tuberculosis. That is no small contribution to the fight against this disease. Let me remind you of the fact that the federal government is carrying out certain restrictive measures in interstate commerce according to law. That is no small contribution to the fight against tuberculosis. Let me remind you of the fact, however, that when you appeal to the federal government to enter a medical society to prevent its members from spitting on the floor of the corridor of this hotel you are infringing upon state rights. (Applause.) That, gentlemen, does not belong to the federal government, and the same would apply to medical meetings held in the following states which I have personally attended, and where I have personally seen physicians, while in conversation, spitting on the floor: Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, Tennessee, and

Texas. Gentlemen, let us begin right at home and start this fight against tuberculosis in our medical societies before we appeal to the federal government to act contrary to existing laws. (A voice: "Good! good!") Unless the medical profession, represented by the state medical society and by the Southern Medical Association, is willing to set the example by controlling its own members, it is foolish for us to go to the federal government and ask the states to change the Constitution of the United States in order to put local police power into the hands of the federal government. It is a complicated subject, gentlemen. There are two sides to it. I thank you. (Applause.)

Dr. Charles L. Minor, Asheville, N. C.: The paper has touched upon so many interesting topics that it will be impossible to discuss them all. I would like, however, to say a word on the question of diagnosis. It is impossible to lay too great a stress upon the importance of early diagnosis in pulmonary tuberculosis, and I am glad Dr. Cocke stressed it so strongly. There is only one point in connection with it which I would like to dwell upon; that is the question of granular breathing.

This was first so called by Wolliez in France in the early part of the nineteenth century, but the author who paid most attention to it and brought it before the medical public was Grancher, of Paris; while in this country I believe, I myself was the first one to dwell upon its importance. It is unquestionably the earliest breath change to be noted, and if localized to one relatively small area and persistent, it is of the very greatest value in diagnosis. I have described it very fully in Kleb's Tuberculosis, and it is too difficult to describe offhand to waste time upon it here, but I would like to urge anyone interested in the early diagnosis of this disease to study it, in which case I am sure they will corroborate its great value.

Turning to the paper of Dr. Frazer, I am glad to see him estimate the real value of the Von Pirquet Reaction. While valuable wisely used, it is unquestionably being abused by the general profession. I have seen cases diagnosed as tuberculosis on account of a positive Von Pirquet in an adult, although all the best work on this subject has shown that after two years of age its diagnostic value, as far as it may speak for active trouble existing at that time, is very little, and I believe its use should be confined to small children. As the means, however, of recognizing a latent tuberculosis, it has its uses.

Referring to Dr. Lloyd's paper, I would like to stress two points. First, that the real danger in this disease is the advanced careless consumptive and, as Newsholm has shown, if such are segregated in hospitals the incidence of the disease can be greatly cut down. The second point I would refer to is the fact of the very great commonness of the occurrence of infection before fourteen years and the relative rarity of a new adult infection, the trouble when it does wake up being simply the waking up of an infection acquired many years before in childhood. This shows the extreme importance of preventoriums in the handling of children who have been subjected to possibilities of infection in their home, and the great value of seaside hospitals, etc., and fresh air schools; also the importance of teaching parents proper ideas as to the hygienic bringing up of their children.

Dr. Thompson Frazer, Asheville, N. C.: There is one point in Dr. Cocke's paper I would like to stress—our procrastination in making a diagnosis. One of the main reasons for our failure to make an early diagnosis is that we have not yet learned to look upon tuberculosis as a chronic disease characterized by relapses. If we bear this in mind and also the fact that we do not ordinarily get a case until it has had one or more relapses we shall soon learn that the time to make a diagnosis is before the more manifest symptoms have developed. We no longer regard tuberculosis as a "cough that ran into consumption"—we realize that the infection is one that has probably dated back several years; at the same time I do believe that we are more or less influenced by the old idea and are apt to wait for symptoms pointing to the lung, i. e., cough, expectoration or hemoptysis, before we suspect the case as being one of tuberculosis. While the importance of these symptoms cannot be denied, we must not forget that they may be preceded by symptoms of a more general nature. Time and again patients come to us having had symptoms of this nature long before the "respiratory" symptoms have occupied the field. These symptoms are loss of appetite, slight loss of weight, perhaps increased pulse rate and the presence of a little fever as detected by two-hourly temperature records, "neurasthenic" symptoms, mental and physical fatigue on slight exertion—all of which are an evidence of a toxemia. If we look for these and attach the proper significance to them, we shall be able to make an earlier diagnosis than if we wait for the more obvious symptoms already noted.

Dr. W. L. Dunn, Asheville, N. C.: There is so much in all these papers that it is difficult to touch on even one or two phases that deserve discussion.

Referring to Dr. Cocke's paper, the role of early diagnosis in prevention is almost axiomatic and does not need any particular discussion. It seems to me the difficulty in the diagnosis of early cases is this: A firm conviction on the part of the doctor is necessary for a conviction on part of the patient, who is frequently not ill. The average doctor is afraid to make a diagnosis distinctly and firmly because he fears that he will unnecessarily treat or have the patient unnecessarily treated, and thus have the life of the patient or his activities unnecessarily interrupted, or else he is afraid the patient will go to some other doctor, who is not quite so careful, and who will say, "You have not got tuberculosis," a thing that sometimes happens in the diagnosis of an early tuberculosis. We must have conviction ourselves and be thoroughly convinced of our diagnosis and say it to our patients in a way that will carry conviction to them, if we expect them to assist us in a serious fight for recovery. It is of infinitely greater importance that we should seriously treat early tuberculosis than late cases. I put a great many more restrictions on early cases than on the older cases, because the early ones can be returned to a normal life, whereas in the later cases there is

always doubt as to the outcome. It is only too common that the early cases have not been given the distinct regime and rest cure which are so important, and which we carry out so much more thoroughly in the later febrile cases in which we can secure nothing more than a patch-up result in the majority of instances.

Another point: With the presence of physical signs and absence of clinical manifestations, it is difficult to determine what is a normal amount of tuberculosis. I speak of it as such. They are the cases that ofttimes give us the greatest trouble. When we cannot make a distinct diagnosis in these cases it is important to impress upon the patient the necessity of re-examination at intervals to make sure the disease is not existant in an active form.

Dr. E. C. Thrash, Atlanta, Ga.: There are two phases of this subject to which I would like to refer. One is the Von Pirquet test and the other artificial pneumothorax. I think unquestionably there has been more harm done by the local tuberculin test, that is the skin test, than good, for two reasons: Some of the members of the medical profession generally have become overconfident in their faith in it. They have made a diagnosis of tuberculosis from the fact that they get a reaction, and the result is calculated to throw a person in a state of panic and subject him to many inconveniences, possibly a trip away, when he may not really have the disease. Another is, it is often tried upon persons suffering from tuberculosis and found negative. I have seen far advanced cases of tuberculosis come to me where a doctor had told them they were not tuberculous because the test proved negative. This test may prove positive in almost every instance to a degree if the patients are not excessively toxic from the tubercular process, because something like 90 per cent of us suffer from tuberculosis at some period of our lives, and this test is so delicate it will give a positive phase in these 90 per cent if there is not too much toxicity. We know that the patient either has or has had tuberculosis. He has tuberculosis in a latent or active stage. The latent stage case need not be disturbed in either childhood or adults. A person who is in the least toxic will not respond to this test, for the reason that the reaction is produced by antibodies to attacking this enemy which is tuberculin that has been put into the tissues, and if a person is already toxic these antibodies have enough to do at home and do not have time to go abroad and look after other troubles, and for that reason you will always get a negative phase. For a number of years I have condemned this process. There are two points to which I wish to refer in reference to pneumothorax. One of which I have not seen much, if any, attention paid. I have had two or three cases that bothered me very much in the following way: When gas is introduced in either lung where there are rather extensive adhesions, and no adhesions of the pericardium to the mediastinum, the gas would pass in between the lung and pericardium, producing pressure upon the heart and collapse that would almost cause death. That has been referred to by Murphy and others as resulting from shock from the irritation of the pleura. I think the shock to which reference has been made is simply due to compression upon the pericardium, interfering with the heart activity. So we should be careful in introducing gas, especially anteriorly in chronic cases if we expect adhesions, because we may produce sufficient pressure upon the heart, especially if there are any heart lesions, to produce death. The other point is, it is a dangerous procedure unless it is carefully done. One of the most important things in this procedure is to look out for case embolism, and when you get that you certainly will have a death excepting in rare instances.

I am convinced that I got a small amount of air into a vessel at one time when death did not ensue, but it was only a small amount. It was just that amount that the manometer will press out through of its own weight in balancing the water columns. However, the gas was not turned on, but the weight of the water in the manometer pressed a small amount of air into the vessel and produced embolism of the brain that rendered the patient unconscious for some time and he did not remember anything for two or three days. He did not die, however. Improvements which I have since made upon my apparatus, which I constructed in 1912, have overcome the possibility of this danger completely.

Dr. William R. Kirk, Hendersonville, N. C.: I think we are all beginning to realize now that practically every human being has tuberculosis, not in an active state, however, but those of us who have reached our majority have at least had an infection at some time or other. So it only resolves itself finally into recognizing tuberculosis in its active stage when it has become a clinical entity.

As regards the symptoms of early tuberculosis, I want to call your attention to one point, and that is, I do not think we should put too much stress upon the temperature curve alone, for very often we get the same character of temperature curve in cases of obscure malignant disease. Recently I had such a case that gave identically such a curve with a morning subnormal temperature and a moderate afternoon rise.

I was surprised not to hear Dr. Minor mention conditions of the heart in connection with the contraindications in the administration of gas, and I would like to ask him in closing the discussion how many cases he has had where there was an extension of the tubercular process into the good lung, and what he thinks the dangers are in that direction.

Dr. W. E. Driver, Norfolk, Va.: I was much interested in the papers of Drs. Cocke and Frazer on the early diagnosis of tuberculosis. We cannot lay too much stress upon the importance of the early recognition of this disease.

Something has been said about the use of tuberculin, but not all, and among some workers there is a different interpretation than what has been brought out by these two gentlemen. It is a well-recognized fact that tuberculin reaction is specific, but the use of tuberculin test, that is, Von Pirquet, Calmette, subcutaneous, or which one it may be, is only to detect the hypersensitiveness that is shown by the reaction. Those that have not tuberculosis nor have never had it do not show a reaction; therefore, there are a great many negative reactions in young children. In advanced tuber-

culosis there is also a preponderance of negative reactions, showing a used-up hypersensitiveness, and we have also learned not to expect reactions in certain febrile diseases.

A one per cent Calmette is undoubtedly of material aid in the early recognition of tuberculosis.

Now, since a Von Pirquet reaction is positive in from 85 to 95 per cent of all adult persons, it is only of diagnostic aid from a negative standpoint, but, on the other hand, a 1 per cent Calmette properly done is of value from a positive standpoint, for when it reacts we are quite certain that we have to deal with an active clinical case and not a latent case of tuberculosis. Should the Calmette not react we would then necessarily have to fall back on older diagnostic methods.

I would like to ask Drs. Minor and Lapham if any other treatment besides pneumothorax was used in the cases that they have reported today.

Dr. D. M. Malloy, Mobile, Ala.: I would like to say a word about Dr. Rankin's paper. The one part of the paper that impressed me was the state control of tuberculosis. Second, the necessity for state control. It was my privilege about two years ago to see the results at first hand for a short time of state control of tuberculosis in a country where it has given the best results of any place on the face of the earth. I refer to Australia. During a short visit to Australia I came in rather close contact with the work of the health department and the results of some of their work there in the reduction of tuberculosis are nothing short of marvelous. I will give you briefly the method of control in the State of New South Wales. In New South Wales it is obligatory upon every physician to report every case of tuberculosis. This law is a stringent one and carries with it a severe punishment in the way of a fine and possibly imprisonment for the non-reporting of cases of tuberculosis, and it also carries with it a modest little reward of one guinea or five dollars for reporting every case of the disease. This reward, the health commissioner told me, was justified because of the fact that many physicians frequently lost a patient through complying with the law, and it was nothing but right to pay the physician for something that causes actual sacrifice in the way of patronage, and that would be well invested money to pay five dollars for reporting cases of tuberculosis in a country where that disease is much less common than it is in this country and is not such a great burden upon the finances of the state or city. What follows this? The report on tuberculosis does not end there. We discussed yesterday the reporting of deaths and births and vital statistics from various standpoints, and several of the speakers said we could not get doctors to report them, which is true, but the people must be shown the reason for reporting births and deaths and morbidity statistics because something follows this. As soon as a case of tuberculosis is reported in New South Wales it is immediately taken under the supervision of the state health authorities, not that the physician is ousted from the treatment of the case, but he is allowed to remain in charge, but the inspector, usually a district nurse, goes to the home of the patient immediately and the state decides between the environment as such and whether the case may be treated at home. If the environment of the patient is not suitable for human treatment, then the patient is forced to go to a state sanatorium. Of course, we free Americans would not stand for anything of that sort at the present time. Under the direction of the inspectors, the district nurses of the state health department, when it is decided that a patient may remain at home the physician remains in charge, continues his treatment, may leave with the district nurse or he leaves with the family certain regulations which must be complied with after having determined that the home is suitable for home treatment. The patient must have all the things we usually see in a sanatorium for the treatment of tuberculosis, namely, individual drinking cup, and all the utensils that are touched and used by the patient must be individual—towels and everything of that sort. Repeated inspections follow. When it is found a patient has violated any of the regulations, a warning follows. Subsequent breaches of these regulations are followed by warnings, and a second breach calls for a more drastic warning, and a third breach of the regulations calls for the removal of the patient from his or her home to a sanatorium.

Dr. Charles H. Cocke, Asheville (closing the discussion on his part): As has been suggested, the whole field of diagnosis would hardly be covered if we devoted the whole afternoon session to it, much less an attempt to cover the various fields which have been touched upon, and I did not attempt in my paper, which originally was intended for another section but which fitted in with the other papers that have been read, to go into details in the matter of physical diagnosis. However, there were certain points brought out that I desire to refer to.

In speaking of the tuberculin tests, Dr. Driver spoke of the reaction ensuing. When we use the term subcutaneous reaction we have got to remember that this embraces focal, local and general reaction. I used the term advisedly in those cases where there was no fever, and where by the production of focal signs at the site of suspicion, as evidenced by certain adventitious sounds of breath changes which were not prominent heretofore, that this was practical evidence of activity of the disease. Also, it is a failure in case there is no active disease except in 10 per cent of the cases.

As to the use of the temperature curve, I would like to have had a chance to dwell more on that, and at what particular time there is a maximum temperature; whether this occurs usually in the forenoon or afternoon, and at what particular hour; whether it is constant or not at this particular time, and how far it varies from the subnormal period in the morning, and whether it is associated with increased rapidity of the pulse with other symptoms and signs which go with it and which give it its chief significance. If there is sufficient toxemia to cause malignant conditions, if there is increase in temperature from absorption, we usually have something to point to such a condition.

The point Dr. Frazer brought out is one of extreme importance. We are liable to overlook this condition and its tendency to relapse. Frequently,

through unwillingness or lack of time which the observer may give to a patient in examining him, even if he determines the exact condition, he is afraid to pronounce judgment upon the patient without the proper emphasis necessary to convince the man absolutely that he is suffering from tuberculosis. However, we have got to be emphatic in such a matter as Dr. Dunn insisted, and the sooner we do that, not waiting for any particular sign which is diagnostic, but considering the sum total of a great number of things which will give emphasis to the diagnosis, the better. The sooner the clinician makes the proper diagnosis and reaches a conclusion and so informs the patien and loses no time in putting restrictions upon that patient the better chance the patient has for getting well and of not becoming such a burden or danger to the community.

Dr. Thompson Frazer, Asheville, N. C. (closing the discussion on his part): I do not agree with what Dr. Thrash said, that the negative reaction is alone of value and I said in my paper that we do not get a reaction in far advanced or moribund cases. Nor do we find it in some of the acute diseases, especially measles (and this is true to a lesser extent in diphtheria and scarlatina).

As to the absolute significance of the reaction we are in the dark, for while the test is specific, every case that reacts is not one of tuberculosis. The test is one for tuberculosis antibodies and not for tuberculosis. The patient that reacts may have had an infection years ago and overcome it for the sensitiveness may last a long time after the disease is quiescent. We do not know how long the reaction may persist, on the other hand, and it is possible that there may be no reaction, although the individual tested had been infected years previously. In spite of these discrepancies, recent writers have attached considerable importance to a positive reaction in children; it being thought by many that a reacting case denotes not simple infection but recent disease. It is significant that bronchial gland cases have a large percentage reaction.

As to the calmette test, I have had no experience with it. At one time it was thought to show more active disease, but I do not think from the recent literature that this has been borne out.

Dr. J. J. Lloyd, Catawba Sanatorium, Va. (closing the discussion on his part): I would like to say just a word on Dr. Cocke's paper, as I do not like to take up any more time in speaking of my own. There is one thing that has not been emphasized this afternoon in the diagnosis of all cases that is important, and that is the extreme importance of rales brought out by cough following full expiration. Very often in examining the chest we find only slight signs. If that same chest is gone over with a cough following full expiration and a quick inspiration taken following the cough, moist rales are heard which we would not get in any other way..

I was very much interested in the papers of Dr. Minor and Dr. Lapham. The one point I wanted to speak of especially in the signs in the good or better lung. Very often when we have a collapsed lung, with a slight process in the better lung, on account of the extra work the better lung has to perform, we find it does not hold up, and I think the first signs we get are some fine crepitant rales toward the base in the better lung. That is in my opinion quite an important thing to watch for, and when we find there is moisture in the better lung, if we will reduce the pressure, we will save trouble for the patient. There is danger of sudden rupture completing artificial pneumothorax. This has occurred in two of our series, and we aspirated promptly in both cases. We got acute cardiac displacement with embarrassment of respiration, but the embarrassment was relieved promptly by relief of pressure.

I have nothing further to say other than what I have said in my paper, but I think the title of my paper should have been "Lack of Sanatoria in the South,' rather than "Tuberculosis Sanatoria in the South." We have a little less than a total of three thousand beds to treat tuberculous cases occurring in twenty-nine millions of people in the South, and that is a mighty poor showing. It is time for the South to wake up and get busy.

Dr. Charles L. Minor, Asheville, N. C. (closing the discussion on his part): I will read those parts of my paper on Artificial Pneumothorax which I was unable to read in the time previously allotted to me. (Reading from paper.) If this operation needed justification some of the cases which I have quoted to you here are such a justification, for if you can absolutely change an utterly hopeless case by this treatment so that you can prolong its life and make it happy, and much more—if you can return the patient to work, it certainly justifies the operation. I have got in the list, which I have reported, men working without any symptoms at all who previously were moribund or hopeless. Of my list of cases 78 per cent were bad, yet I got nearly 50 per cent of good or brilliant results. This certainly shows that the method is worthy of trial. After my experience of some two years and over I feel that any man working with tuberculosis owes it to his patient and himself to give this method a thorough trial.

As to the question put by Dr. Cocke—extension in the good lung has occurred in five of my patients. This can to some extent be controlled by very close watching of the good lung during the course of the treatment, and if any signs of waking up show, pressure can be relieved by the removal of gas. Again, blistering over the good lung will help to check the spread. The great danger, however, is in putting in too much gas too quickly into the bad side and throwing the tax upon the good side too rapidly, in which case you are very apt to wake up the bad lung. In one nearly moribund patient I had gotten the most brilliant results with a loss of all her symptoms and a wonderful improvement, but I proceeded too rapidly, the trouble woke up in the bad lung and in a few weeks she was dead from a general extension, and I feel had I gone much more slowly with one to three hundred c.c. of gas each time, I might have gotten much better results. My only hope in presenting this paper to you was to stimulate some of you to give more attention to artificial pneumothorax in the class of cases I have brought before you. It is something we can fall back upon in treating advanced and hopeless tuberculosis in order to ameliorate their condition.

Again, in certain advance cases we can trust to it to actually cure the case and, of course, in hemorrhages and certain cases is life-saving.

Dr. Mary E. Lapham, Highlands, N. C. (closing): Just a word in regard to the effect on the other lung. It is perhaps forgotten that it is not only the increased amount of work the other lung has to perform. By the pressure of the gas upon the bad lung sometimes there is an immense amount of toxins forced rapidly into the circulation, especially if the operator is in favor of high pressure. When these toxins are driven rapidly into the good lung it is quite possible that an edematous condition may be caused which is comparable to an overdose of tuberculin. From many of the reports I have read it seems to me that a great many cases of rales in the better lung, both at the helun and at the base, have been due to the fact that too high a pressure has been too suddenly applied and has driven rapidly into the circulation a large amount of toxins, thus causing edema of the other lung and not due to overwork entirely.

ETIOLOGY AND TREATMENT OF PELLAGRA.

By B. W. Page, M.D.,
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For two and a half years I have made a careful study of intestinal bacteria associated with pellagra, but the intestinal flora and fauna include so many species I have looked with doubt on the pathogenicity of any of them until it is definitely proven. In addition to the colon group of bacteria which are found in feces of pellagrins, I have observed with much interest a bacillus which must be the cause of the disease.

This bacillus is from four to ten microns in length and is more sharpened at the ends than others of the colon group. It develops by spore formation and presents itself in many forms. When spore formation is about to occur a point of cloudiness or an area of bright refraction appears in the protoplasm and the cell generally elongates. The spore enlarges, the cell membrane bursts and the young bacillus emerges through the opening. On first appearance the young bacillus is very active and for a few seconds it is spiral or corkscrew shaped. It gradually elongates and becomes less and less motile. Later it may appear rod-shaped, slightly curved or as a long undulating thread, often suggesting the appearance of a streptococcus before sporulation occurs.

In all its forms the bacillus is motile. The different sized cells, as well as the bacillus itself, have the power of independent motion, and so varied is the appearance of the organism, the microscopist often believes he is dealing with many varieties. It is best studied in a fresh stool, in a warm room, but it is motile in a specimen two weeks old, or as long as there is moisture. Morphologic changes, however, are seldom observed except in fresh specimens. The bacillus is aerobic, and is decolored by Gram's method of staining. The spores are little affected by this stain.

Daily specimens from a single case of pellagra vary much in appearance. One specimen may show an abundance of spores and very few if any bacilli, while another specimen may reveal a dozen or more bacilli in one field with very few cells. A thin stool placed in an incubator often changes its appearance in forty-eight hours. So numerous are these bacteria in many specimens they compose five per cent of the solid portion of the excrement and more than seventy-five per cent of all the motile organisms present. Sterile feces afford the best culture medium. They grow well in this medium at a temperature of eighty (80) to ninety (90) degrees.

Animal inoculation experiments have not been very successful. A mild diarrhoea and nervousness was produced by feeding a cat on food contaminated with pure cultures, and the bacilli were again observed on microscopic examination. In a man pellagra has been induced by accidental transference of cultures of the bacilli. Pharyngitis and bronchitis developed within three days and were soon followed by definite intestinal and nervous symptoms of pellagra. The pharyngitis and bronchitis subsided in about ten days but the other symptoms remained until successful treatment

was administered. The microscope revealed the organism in its many forms for four weeks.

Of the sixty-four cases of pellagra examined the bacilli were seen in great numbers. Twenty-one of these have been examined many times and the organism was present in every instance for many months. The organism has not been seen on examination of healthy individuals and those suffering from other diseases.

The bacillus in culture has been tested by many drugs. A one per cent solution of ichthyol seemed to have a most decided effect. I have partially tested this drug on twenty-two cases of pellagra within the last ten weeks. One or two five-grain pills three or four times a day for three weeks seems to cure the average case. Nearly all uncomplicated cases consider themselves cured by the tenth day, and the bacilli as a rule disappear by this time, but by stopping the drug this early the bacilli and symptoms return in one-fourth the cases three or four weeks later. From the short experience I have had with the drug I readily conclude, however, that an eight-day treatment is of far greater value than a four months' treatment with the arsenic preparations. I have never found a case entirely free of the bacilli after treatment with the latter drug. In the very severe cases suppositories or colonic irrigations are of great value. In so short a time it is impossible to have tested the drug thoroughly, but I regard it as a specific. Just how long the spores will lie dormant in the intestine time only will prove.

The bacilli in all stages of the disease are present in enormous numbers in the contents of the large intestine. I believe they are usually confined to this situation. Their deleterious effects upon the body appear to be largely due to the production of toxic substances which, in addition to serious intestinal irritation or lesion may on absorption incite those systemic disturbances which characterize the toxaemia. The disease must be spread by direct contact with the excrement of those afflicted with the malady or by flies conveying the parasite to articles of food.

NEW COMPLEMENT BINDING REACTION IN SYPHILIS—PRELIMINARY REPORT.

By Stevens T. Harris, M.D.,
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The so-called Wassermann reaction and its modifications used for the diagnosis of syphilis are based upon the Bordet-Gengou phenomenon called complement fixation. The theory of this phenomenon is explained by assuming that when (antigen) some substance such as a foreign protein toxin or virus of disease is introduced into a living body there results a reactionary substance or antitoxin called antibody, which has a specific affinity for the antigen when the two are mixed under proper conditions with the constituent, more or less normally present in the serum of animals, called complement. When the union takes place a certain amount of complement is bound up which is not available for a similar binding reaction, so that when washed blood corpuscles of one species (in this case an antigen) are later added to this same solution in the presence of its reactionary product from an alien species, for convenience called amboceptor, the previously bound complement cannot unite the blood corpuscles and amboceptor and cause solution or hemolysis of the corpuscles, thus giving visible evidence of the binding or non-binding of the antigen and antibody. In case there is binding where a known toxin (antigen) of disease is used, the supposition is that it could have united only with its own specfic antibody, thereby proving the presence of the disease producing the toxin.

Now in the Wassermann and its modifications a great variety of substances, even extract of normal tissues of various animals, have been found to act as antigens and, further, antibody alone is sought for.

In view of the fact that the most ardent defenders of the Wassermann reaction and its modifications do not claim to always get positive results, that the reaction has been shown to respond in other diseased conditions, and sometimes even may be obtained in health, it occurred to me that there was something radically wrong with the procedure, though possibly not with the theory upon which it is based.

Believing that the syphilitic virus or antigen would produce its own specific antibody and respond to this alone, and that the antigen would be found in the serum, a search for it was begun. Knowing that heat at 55 degrees to 56 degrees C. applied for half an hour would destroy what is called complement; further that its prolonged application or heat at 72 degrees C. for twenty minutes, as has been clearly shown by Noguchi, would destroy what is known as antibody in syphilis, I investigated the possibility of the survival of antigen or part of it after the elimination of antibody by heat. The serum of a patient who was unquestionably clinically syphilitic, and who later responded perfectly therapeutically, was heated to 71 degrees to 72 degrees C. for 20 minutes; five drops of this serum, as well as that of others similarly treated, were used as antigens. With this change the most excellent technic of Noguchi was followed. It was found that the serum of syphilitics with antibody eliminated by heat acted as antigen and gave complement binding with the serum of other syphilitics. Serums which had given antibody reactions were in turn found to act as a finder for antigen in other serums which had been heated 71 degrees to 72 degrees C.

Some heat-treated serums used in excess seemed to alone bind complement, but I am not sure that all blood corpuscles had been eliminated from the ones where this was noted.

The complete Noguchi technic was used parallel with practically all of the test, and the results frequently coincided, but there were many variations in both directions. It was found desirable to accurately titrate the guinea pig complement.

Five drops of the 72 degree C. serum was arbitrarily adopted and does not give as high a degree of complement binding as a rule as a paralleled Noguchi test would. It is quite likely that it would be found advantageous to use more than five drops of the 72 degree C. serum.

It may be that the degree of heat used can be less than 71 degrees to 72 degrees C., as some serums coagulate at this degree of heat. Coagulation would be a disadvantage to the application of this method. I am now investigating the necessary amount of serum and degree of heat. Possibly the coagulation might be prevented by the addition of other substances, etc., which would not interfere with the reaction.

If the method proves really specific in syphilis, the advantages to be derived from it are self-evident. It may be that the same method might be used in other diseases.

As tuberculin is known to resist very high degrees of heat, it seems logical that the tuberculous antigen would do the same. I am now investigating the application of the heat-treating method to its diagnosis, but am not at the present time ready to make a report in regard to it.

Specificity being the cardinal principle of the Bordet-Gengou complement fixation phenomenon, any system the practical application of which fails to comply with this law is in reality worthless as an accurate diagnostic procedure. It seems to be true that syphilis, for example, under certain unknown conditions, causes the production of antibodies which give complement fixation with a variety of substances used as antigens. We would suppose theoretically at least that each of these antibodies is specific for its own antigen. This would be the inevitable conclusion of the logical application of the theory as applied to this condition. To assume that the syphilitic virus produces one antibody which deviates complement with so many different substances used as

antigens would discredit the whole phenomenon of specificity in this case.

In explanation of the action of known substances used as antigens which fix complement in the Wassermann reaction and its modifications it might be suggested that a number of antibodies are formed as a result of the pathologic changes and consequent altered metabolism produced.

If it is granted that the Wassermann reaction is specific there would be still much to be desired on account of the fact that antibody alone is demonstrated. Of course it is possible that antibodies or antitoxins persist long after disease has disappeared, and in a great many instances even for life, as in smallpox, and even syphilis itself. So the demonstration of an antibody would not necessarily mean the presence of the disease which was its cause. To condemn one to a diagnosis of syphilis and its consequences merely on the finding of an antibody appears altogether wrong. In the heat-treating system we not only aim at specificity, but the demonstration of antigen as well as antibody.

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EMETIN HYDROCHLORID IN THE TREATMENT OF ENTAMEBIASIS AND OTHER AFFECTIONS.*

By Randolph Lyons, M.D.,
New Orleans, La.

So much has been written in the past two years on the emetin treatment of amebic disease that it will be the aim of this paper to simply summarize the progress made in our knowledge of the use of the drug up to the present time. Only the hydrochlorid of emetin will be discussed, with occasional reference to the parent drug, ipecac.

To obtain the best results with any drug, no matter how specific it may be, we should have as thorough knowledge as possible of the etiology and pathology of the disease in question and the mode of action of the drug to be employed. Unfortunately in amebic dysentery our knowledge of the habits of the entameba hystolytica in the body is somewhat incomplete and there is still much to be learned with regard to the pharmacological action of ipecac and emetin. Emetin has been shown to be highly destructive to amebae, particularly in the vegetative stage. Furthermore, the subcutaneous use of the drug demonstrated that its action in the body was due chiefly to its absorption into the blood stream, with subsequent destruction of the amebae in the tissues. So far as I am aware, the question of how emetin and ipecac are eliminated from the body is still unsettled. Yet, how important it is to know when emetin is injected subcutaneously whether or not it is eliminated from the circulation by way of the colon; or when emetin or ipecac is administered by mouth, does it reach the colon as such or are its amebicidal properties absorbed in the small intestines and simply inert matter passed in the stool? The importance of these questions will be appreciated when we consider the fact that some authors advocate the simultaneous use of emetin by needle and ipecac by mouth on the grounds that the injections of emetin will destroy the entamebae in the tissues, while those free in the colon will be killed by the ipecac. If these facts were fully substantiated, then a combined oral and subcutaneous therapy would be the most rational method of attacking the disease. In a paper to be published later these points are discussed in detail and it may be of interest to present some of the conclusions arrived at.

1. "Ipecac and emetin when taken by needle or by mouth act through absorption into the blood stream and exert their specific effect only on those entamebae within reach of the circulation, that is, in the tissues.

Amebae free in the lumen of the gut are

*Read in Section on Medicine, Southern Medical Association, Eighth Annual Meeting, Richmond, Va., November 9-12, 1914.

apparently not affected by either the oral or subcutaneous use of emetin or ipecac.

2. It is not definitely known how or in what form ipecac and emetin are eliminated from the body, but there is some experimental evidence that the amebicidal principles of ipecac (emetin) when taken by mouth are not eliminated in the feces.

3. The failure of emetin by needle to destroy the vegetative entameba coli, a parasite simply harbored in the intestinal canal, argues against the elimination of the drug from the circulation by way of the large intestines.

4. Relapses are due to the survival of some of the entamebae probably through encystment. There is reason to believe that in the majority of relapses some of these cysts remain embedded in the the tissue of the gut, only awaiting favorable conditions to become vegetative.

In the carrier state the amebae are probably simply harbored in the lumen of the gut in the same manner as the ameba coli, thereby causing no symptoms. The intestinal mucosa is in some way protected against the penetration of the organism."

Considerable advances have been made in the mode of administration of emetin in entamebiasis. It is generally conceded that the best method of giving the drug is by subcutaneous injection. On rare occasions the intravenous route may be required. The oral route is not to be recommended because of the intestinal irritation produced by the drug. While not strongly emetic, emetin is sufficiently so to require its employment in salol or keratin coated pills. If administered by mouth, the individual dose should be small (1-6 to 1-3 grain).

The recent tendency to give large doses of emetin by needle is, in the writer's opinion, inadvisable. In the majority of cases of amebic dysentery an average of one grain daily meets every indication. In acute cases with hepatitis, sometimes as much as two grains may be necessary. To obtain rapid effect the individual dose should be small, preferably gr. 1-3, as this dosage is free from local irritation and is quickly absorbed into the blood stream. That the amebicidal action may be maintained it should be administered two or three times daily. Any single dose above half a grain is more than likely to cause local irritation and thus retard absorption.

The immediate and often brilliant effect of emetin in amebic disease is, it would seem, one of the chief causes of its ultimate failure in some cases. Unfortunately there is a lack of system even as regards length of treatment with emetin. Some physicians stop the drug as soon as symptomatic improvement takes place, while others prolong its use unnecessarily and sometimes harmfully. The best plan to adopt, in the writer's experience, is to continue the injections for four or five days after the stools are apparently normal, provided the total duration of the course of treatment does not exceed two weeks. I have mentioned "course" particularly because I believe that the disease should be treated with courses of emetin in the same way as formerly with ipecac.

The limitation of the first course to two weeks is based upon experiences which apparently demonstrate that the prolonged subcutaneous use of even moderate doses of emetin may produce or keep up a diarrhoea. Large doses over a short period of time may do the same. Furthermore, large doses or prolonged use of moderate doses may produce a peripheral neuritis. I have reported one such case.

It is also quite obvious that if we are not able to destroy the entamebae in a reasonable length of time, the chances are that they are encysted and will resist further medication. It is then incumbent upon the physician to institute an intermittent form of treatment in the hope of attacking the amebae when they are again in the vegetative stage. Only in this way will the percentage of relapses be reduced. The condition may well be compared to that of the gamete carrier in malaria. Quinine has no effect upon these forms, and to give the drug continuously over a long period of time

would be impracticable as well as useless and only tend to make the organisms quinine-fast. Therefore it is necessary to fall back upon an intermittent plan of treatment upon the assumption that at some future time, through parthenogenesis, the asexual cycle will be resumed and our quinine once more effective. In amebic dysentery it is not always a simple matter to detect cysts in the stools, so that it is advisable to give at least three courses of the drug.. The secondary courses may be given after intervals of two or three weeks, and need not last more than four or five consecutive days. The dose of emetin should be two-thirds to one grain daily, preceded by a preliminary purge (Mag. sulph. 1 oz.).

It will often be found difficult to make an apparently well patient see the necessity of such courses. Recently I have had a relapse, after an interval of four months, in a patient of unusual intelligence, whom I had earnestly warned to take an intermittent form of treatment, but who disregarded the advice.

The treatment of relapse differs in no way from that of the original attack.

In cases of liver abscess, the majority of which are surgical, emetin should be given before when possible, as well as immediately after the operation. For adults a dose of one grain daily suffices. In three cases that came under my observation the drug apparently had a marked beneficial effect upon the discharge from the wound as well as controlling the temperature. These cases recovered. The literature shows a very noticeable reduction in the death rate of liver abscess under emetin. In small abscesses which are free from secondary infection simple aspiration of the pus with re-injection of a grain of emetin as advised by Rogers has resulted in cures. The drug is administered subcutaneously as well.

The Use of Emetin in Pyorrhea Alveolaris—The use of emetin in pyorrhea alveolaris was originated by Smith and Barrett.[1] The treatment was based on the fact that scrapings from pyorrheal pockets showed amebae in about 50 per cent of the cases, while they were absent in the gum margins of negative mouths. The drug in a half per cent solution was injected locally into the pockets. These observations have been confirmed by Bass and Johns[2], who have further improved the technic by the subcutaneous injections of emetin. They have recently announced that[3] 200 cases have been examined with failure to find amebae in only one instance, and in this case the diagnosis was not certain. They administered one-half to one grain of emetine daily for three or four days, which usually caused a disappearance of the amebae. Further experience will be necessary to determine how many more injections will be needed to maintain a cure. These authors also advise the local use of a drop or two of fluid extract of ipecac on the tooth brush at night. They consider it likely that the local injection of the drug as used by Barrett will favor success in certain cases. My own experience is limited to only four cases, but marked improvement was obtained in all, which has persisted up to the present time. Two of these cases were in negroes and the outlook for cure was very poor, as they took no care of their teeth, but, in spite of this, after four injections of one grain daily, repeated search for ameba was negative and marked improvement in the gums was noticeable. As these two cases were under treatment for amebic dysentery, we were, so to speak, killing two birds with one stone. It would seem that the outlook for cure in this very common and obstinate condition is most favorable and the discovery is one of far-reaching importance.

Emetin in Hemorrhagic Conditions—The use of subcutaneous injections of emetin to stop hemorrhage was probably based on the

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[1] Barrett, "The Protozoa of the Mouth in Relation to Pyorrhea Alveolaris." Dental Cosmos, Vol. LVI., No. 8, p. 948.

[2] Bass & Johns: "The Specific Cause and Prompt Specific Cure of Pyorrhea Alveolaris or Rigg's Disease." N. O. Med. & Surg. Jour. November, 1914. Vol. 67, No. 5, p. 456.

[3] Bass & Johns: Paper read before Orleans Parish Medical Society, November 2, 1914. Not yet published.

fact that in amebic dysentery the bloody fecal discharges were so rapidly checked. In amebic disease this could be easily explained by the destruction of the amebae which were moving about in the tissues, causing constant irritation and spread of infection. Once they are killed, reparative processes proceeded with remarkable rapidity and bleeding ceased. The employment of the drug in hemorrhage from other causes is thus far entirely empirical. The modus oprandi of the drug, Flandin[4] admits, is obscure, as the blood pressure, coagulability and cell counts remain uninfluenced. This author reports twenty cases of hemoptysis successfully treated by subcutaneous injections of emetin, and his results are corroborated by other French observers. These communications encouraged me to try the drug in three cases of hemoptysis of tubercular origin.[4] The first case was a man of 26 in third stage of tuberculosis. He began expectorating bloody sputum two weeks before admission. On admission he had quite a profuse hemorrhage and was put on emetin, gr. 1-2, t. i. d. Four days later he died, still spitting blood. The second case was a man of 31 in the first stage of phthisis. On admission he coughed up about one pint of blood. The patient was kept at rest, bowels opened and on the following day the bleeding had diminished. He was then given emetin, gr. 1-2, twice daily for three days. At the end of this time the hemorrhage had ceased. Five days later the sputum again became bloody and remained so for five days, in spite of one grain of emetin daily and rest in bed. The third case had a very slight hemorrhage three days before admission and was improving when he came to the hospital. Under rest in bed and emetin, the sputum cleared up in five days. In these cases I could detect nothing that could be attributed to the influence of the emetin. With these exceptions, all the reports thus far published are favorable to the anti-hemorrhagic properties of emetin, and it has been employed in bleeding from the nose, uterus, bowels and even typhoid hemorrhage. It is quite true that bleeding from Rigg's disease is quickly checked by emetin, but here the etiology and cause are practically the same as in dysentery cases.

The Use of Emetin in Other Diseases—Emetin has recently been used in most diverse affections, but there is as yet insufficient data upon which to base any conclusions. It is most likely that the drug will find its chief field of usefulness among the protozoon diseases. Emetin has been found of value in a few cases of sprue, balantidium coli, lamblia and schistosomum.

1428 First Street.

[4] Flandin: "Emetine in Hemoptysis." Soc. Med. des Hospitaux July 18, 1913.

DISCUSSION.

Dr. C. C. Bass, New Orleans, Louisiana: This subject is too large for us to cover all phases of it, but I have been especially interested in association with Dr. Johns in New Orleans during the last three months in reference to Rigg's disease. Our study has comprised about three hundred cases, and beyond any question the ameba buccalis is the cause of Rigg's disease. This organizsm was found present in all cases, and immediately upon the disappearance of the ameba the disease rapidly improved.

We have been particularly fortunate in being able to experiment with a specific for these amebae, because we have been able to watch the progress of the cases, having treated them with different doses and at different intervals between doses to determine how much emetin it is necessary to give to kill the amebae, how long it takes, and what interval between doses is permissible.

It is unnecessary to relate many of the observations that were made, but our conclusions are that we can lay down the dogmatic rule that all amebae demonstrable will disappear from the mouth or from the disease in a period of from one to sixty successive days by giving half a grain of emetin a day. Some cases may require one, others two or three hypodermic injections of emetin, but it takes from three to six doses, depending upon the severity of the case, to destroy the amœbae so they cannot be demonstrated. The proportion of cases in which they return in a period of four to six weeks, that is, relapses, so that the amebae can be demonstrated again is seven or eight per cent. In fifteen cases we have been able to find amebae in a period of four to six weeks. The emetin does not destroy all of the amebae or else the patient gets reinfected.

Our studies have also led us to believe that no less than 95 per cent of all adult people have this disease that are infected. Take the first ninety-five people that we meet on the street, if we examine them carefully, we are able to demonstrate around the posterior teeth in many of them

this disease in some stage. Remember, it begins as a disease of the gums. It takes weeks and months and probably years before the alveolar process is invaded, then the periosteum or peridental membrane around the teeth is destroyed, and finally the tooth gets loose. When a patient's tooth is lose, that is the end of Rigg's disease for that particular tooth. It is a universal disease, and reinfection is likely to take place. It is to be expected. It would be a peculiarity if these patients did not have it. Emetin or ipecac will kill or destroy the amebae under the gum, but it does not heal the lesion. We have left lesions of varying extent which must be taken care of by Nature. The lesions expose such pockets as we have around some of the teeth We think of a tooth set in a hole or cavity, and that is bone. There is dead bone in that cavity. It takes Nature a considerable time to get rid of that dead tissue. From that time we should prevent reinfection.

We have experimented with local applications of ipecac, as Dr. Lyons has said, and not only does the fluid extract of ipecac prevent reinfection, but it will actually cure the disease in the gums in the early stage where it has not progressed far. Our exact method of applying it is to have the patient brush the teeth with an ordinary tooth brush for the purpose of cleaning them, then put one or two drops of fluid extract of ipecac on the brush. Brush again, force the medicine between the teeth, and spit out the excess of the ipecac. The amebae will disappear from superficial lesions from that treatment and no other. It seems to me, one can continue that and prevent the disease, and perhaps, in very mild cases cure them.

A Member: I would like to ask Dr. Bass if he has carried on examinations to see if there was general systematic infection, and if this treatment, would really rid the system of the patient of this infection, not only from the gums, but does the patient carry any more infection in his system to be reinfected in the gums or alveolar process, or does he get his infection from an outside source?

Dr. C. C. Bass, New Orleans: I do not think it is hardly fair, as Dr. Lyons would probably like to close the discussion, but I shall be glad to answer the question that has been asked.

The ameba buccalis is not demonstrable, so far as we can demonstrate it, in any part of the body, except in the gums and perhaps in the tonsils. Tonsillitis is also caused by amebic infection, as most of our cases of tonsillitis are. Chronic tonsillitis is caused by amebae, as is pyorrhea. Emetin is a specific for all amebae we know of, both pathogenic and non-pathogenic species.

As to emetin in the cure of tonsillar infections, this is the work of Dr. Smith, and not mine.

Pyorrhea is a universal disease. Everybody has it or has had it, and they will lose teeth from it, if they live long enough, if not from caries. The majority of teeth are lost by this disease. Hypodermic injections of emetin are objectionable because of pain and irritation, and it requires an expert to give it. Hypodermic injections of emetin cannot contribute a great deal to the control or reduction of this disease. We have been working with the hope of finding some method by which the disease can be cured for a few cents worth of medicine by internal treatment and external. We are prepared now to make the announcement, although I am not ready at this time to give the details, that the treatment will be perfectly practicable; that everybody who can pay a few cents for medicine who have this disease can be absolutely cured by the methods to be recommended.

MEDICAL INSPECTION OF RURAL SCHOOLS—METHODS, RESULTS, POSSIBILITIES.*

By Roy K. Flannagan, M.D.,
Director of Inspections, State Board of Health,
Richmond, Va.

For the past two years the State Board of Health has been conducting medical inspections of schools and school children in rural districts of Virginia. Two complete counties have to date been covered. Two other counties in widely separated parts of the state are now being looked after. The net results of this work dealing only with the main features and comparing them with the 1914 Richmond report show that in Orange County and in Loudoun, respectively, there were found 21 1-2 per cent and 28 per cent of defective eyes. In Richmond only 6 1-2 per cent are reported, New York City 22 per cent, Chicago 15 1-2 per cent, Pittsburgh 17.3 per cent, Harrisburg, Pa., 6.7 per cent.

In Orange and Loudoun, 7 1-2 per cent and 9 per cent, respectively, of defective hearing, while in Richmond only 1 1-2 per cent was found, New York City 1.1 per cent, Chicago 1.3 per cent, St. Louis .4 per cent.

In the Orange County and Loudoun County inspections 34.7 per cent and 44 per cent of children had enlarged tonsils, in Richmond less than 5 per cent, New York City 12 per cent, Harrisburg and Pittsburgh 14.2 per cent.

Defective teeth in these rural counties was

*Read in Section on Public Health, Southern Medical Association, Eighth Annual Meeting, Richmond, Va., November 9-12, 1914.

54 and 58 per cent, while only 30 per cent in Richmond, New York City 55 per cent, Chicago 37.7 per cent, Trenton 18 per cent, Pittsburgh, 42.2 per cent.

Comparing the above four points the country over we find (figures prepared 1914, by Thos. D. Wood, Chairman of Health Problems of the National Conference on Education):

	City.	Rural.
Eye defects	13.43%	21.08%
Ear defects	1.28%	4.78%
Tonsil defects	16.42%	28.14%
Teeth defects	33.58%	48.8 %

Allowing a wide margin for differing standards of inspection, there is still a great gap between the town and country which no amount of casuisty or sentiment should suffer us to ignore. These figures are appalling and hardly believable, but entirely apart from all comparisons, whether warranted or not, it must be admitted that the country child is certainly below par.

THE CITY CHILD.

The city child is steadily rising in the physical scale, while his little country cousin is apparently at a standstill. The city child in a well organized community meets even before his entrance into life with health department care, and at his advent its heraldic attentions, for the prenatal nurse and instructive bulletins find the expectant mother, and the birth record in health department archives proclaims the child's supreme importance. He is followed through his babyhood by the care of instructed parents, and the dangers of impure milk are carefully warded off by inspected dairies and tuberculin-tested herds. Pure water and proper sewage disposal are provided, and stables and other filth places are regulated. His mother receives, as the seasons pass, specific teaching on the infectious diseases. Whooping cough and measles, with their dangers, cholera infantum and croup with their blight, are shown up for what they really are, hideous goblins of darkness bent on tying weights to helpless childhood to handicap its race through life. These and other insidious foes of babyhood are cornered and caged by health officials as they appear, and the little city child walks in safety through the streets. At the school door a nurse meets him and periodically a medical inspector looks him over, in order that beginning physical defects may be corrected or contagion warded off from others. It cannot but be that this wise forethought shall have its effect in a robuster childhood and youth, and so the record stands.

THE COUNTRY CHILD.

What contrasting conditions surround the rural child in its fresher air and wider reach? An uninstructed mother surrounded by Sarah Gamps and superstitious advisers is his usual portion. If he is so fortunate as to be ushered into life by a doctor, small care is given him thereafter unless he is sick enough to go to bed. The croup, cholera infantum, measles, mumps, whooping cough and chickenpox are expected visitors, and no special attempt is made to keep them away. The water supply of the home when not an unguarded spring is usually an open well with double buckets on a pulley, the wet ropes of which invite the passerby to come and clean his hands as an incident to quenching his thirst. This and the proximity of the barn yard, with its fly incubators and the frequent absence of any sort of privy, all furnish an environment which must inevitably hinder the development of the little human beings brought up in it.

POETRY VS. FACT.

The poet Cowper said:

"God made the country and man made the town,
What wonder then that health and virtue, gifts
That can alone make sweet the bitter draught
That life holds out to all, should most abound
And least be threatened in the fields and groves."

This sentiment, which all agree ought to be true and doubtless was true in the time it was written, must now undergo revision.

Morbidity statistics show that typhoid, malaria, hookworm, diphtheria and smallpox, great disease monsters from which our people suffer, are more prevalent in the country than

in the town. It now transpires that the rural child is not up to the physical standard of the city child. It would seem that the same carelessness and neglect of sanitation which made the cities of the old world, in days gone by, the hotbeds of the black death, smallpox, and the thousand and one horrid ills from which our forefathers suffered, is showing its same tendencies in the God-made green fields and groves of our time. The menace, too, to modesty and virtue which lies in the almost universal soil pollution habit of the country, forces upon thoughtful men the question as to whether the fields and groves do not hold a danger for the country girl, greater than anything the city supplies.

It is not contended that the lot of the country child is worse than formerly, but it is submitted that the city child's lot is vastly improved, and something must be done to equalize their start in life. The healthful, invigorating life in the open air, the independent spirit, engendered by contact with nature, together with the ability to meet emergencies which daily dependence upon one's own resources gives to the country dweller are natural advantages with which the city cannot compete. It only remains for the development of plans to lift the handicap which so heavily offsets every benefit the country possesses.

THE LOGIC OF THE SITUATION.

Adequate health organiaztion for the country must be the eventual solution. But how may this be installed when those who are to pay for it do not know that they need it? I commend to you the country school as the logical point from which the propaganda must start, and medical school inspection as the logical first step, the local physician as the logical man to do it, the rural visiting nurse as the missionary of correction, and the State Health Department as the logical agency through which all may be co-ordinated.

Upon the country physician, then, burdened as he already is with work, does this duty fall, and he may not stand from under if he realizes the need. Perhaps he does not realize it. Studies of the physical condition of rural childhood have been very infrequent and conditions in different localities vary greatly. Many doctors will need to be shown. In view of the tremendous issues at stake, is it asking too much of them that they go to their own nearest school and find out the truth about the children that congregate there?

DETAILS AS TO PROCEDURE.

The procedure of medical inspection is simple, and is only designed to discover physical defects easily apparent. By the method commonly used and with the teachers' help at eye testing, fifty children may be inspected in about two hours. For the eye test Snellen's card is hung at twenty feet from the child. Ability to read the letters marked 20 roughly indicates normal vision. One eye is tested at a time, a book or a card is placed over the other, both remaining open. If the child can only read the 30 line, he has 20-30 or two-thirds vision; if the 40 line, 20-40 or one-half vision. Hearing may be tested at the same time. Ability to hear a whispered question at 20 feet should satisfy the teacher that the child is not deaf enough to interfere with school work.

As regards the other phases of inspection, the doctor should take his place in the best light obtainable, his only paraphernalia being a supply of wooden tongue depressors (he will probably not need these often). He should take the name of the child and his guardian's name and address. These should be recorded in a notebook (I usually use a five-cent composition book previously ruled in pencil). The sex, age, grade, the nutrition, color of skin, eruptions, enlarged glands, vaccination and previous diseases should be noted. Then the mouth should be inspected for enlargement of tonsils, mouth breathing and bad teeth. Previous history and physical conformation will be the determining factors as to the use of stethoscope. The narrow percentage of lung and heart troubles detectable in the bustle of a school room makes negligible

the data obtainable regarding them, so they may well be ignored.

An inspection covering these points and in this method is decidedly not a very scientific affair, but it sifts out gross defects and easily reveals 85 per cent of all physical deficiencies. It will surely prove an eye opener to the doctor who conducts it, and ought thereby to turn his thought toward the urgent necessity for some corrective machinery to meet the tremendous need uncovered.

THE SCHOOL BUILDING AND ENVIRONMENT.

While at the school the doctor should not fail to observe and record conditions of environment, such as cleaning, lighting, heating, ventilating and water delivery, whether bucket or cooler, individual or common drinking cup is used. The character and proximity of the water supply should be looked into and the unprotected spring and open well unqualifiedly condemned. The facilities for sewage disposal, if any, should also be observed closely as a matter of paramount importance, for if at the school there are no proper facilities for disposing of human wastes, how can it be expected that newer ideals in this regard can ever be inculcated in children from homes who from time immemorial have ever used the woods and fence corners. Sanitary privies at the school, entirely apart from health consideration, are a social and educational necessity. They must be convenient and comfortable so as to invite the use which they certainly do not now encourage.

FOLLOWING UP DEFECTS.

Having made and recorded the inspection of these schools and children, what then?

What use shall be made of the data gained? Manifestly the doctor cannot make it public property, neither can he in many cases approach the parent of a defective child; particularly is this true if the child's parents prefer another physician.

It is here that the State Health Department may and should step in by taking the inspection data gathered, and by letter notify the parent of the child's defect, advising him to consult his doctor, a specialist or the dentist, as need requires. The wording of the letter should be rather that the child appears to have such and such a defect rather than a positive statement of diagnosis.

Many parents would have their children looked after if advised by the State Board of Health, who would pay slight attention to a notice from a local source. Even so, there will be a large number, and these doubtless constituting the neediest cases, who will do nothing, perhaps in the majority of these they will be unable to do anything about their children's defects. What may be done about them?

THE MESSENGER OF HOPE.

The doctor can only in very exceptional cases enter the homes of people who have not sent for him and advise with them as to surgical or dental procedure. It is preposterous on its face, and yet this very thing must be done by someone or half the work of the school inspection will go for naught. More even than this must be done. A way must be opened for free help to the poor. It is here that school leagues and local societies of the county must be enlisted to raise funds to put a rural visiting nurse in the field, who using the data furnished by the inspection can without offense quietly discuss with parents ways and means of curing Johnnie's throat or fixing Susie's teeth. She can be the co-ordinating agent of the social forces of the community and follow up the essential work of the doctor in the school by seeing that everything is done to connect up the need with the helping hand. This is not an Utopian scheme, but one that is being worked out in several counties in this state and elsewhere.

The National Red Cross Town and Country Nursing Service is training young women for this work. It but remains for forward looking people in the country to co-ordinate the benevolent and social forces already existing in order to make this splendid service possible. Leadership only is necessary.

LEADERSHIP.

By reason of the doctor's knowledge, training and professed ethical standards he is clearly the leader needed. And what greater inspiration could he have? The ideals he has always had for the people at last on the way towards fulfillment. A people arousing to an apprehension of the most valuable side of his profession, the prevention of ills which make his ministrations necessary. For some unsocial minds among medical men the prospect may not be alluring, and in the spirit of reaction they may act as hindrances or remain indifferent. But as the tide of widespread knowledge of the causes of disease sweeps into every corner of the land, a readjustment of the doctor's function must come. He must become less of the job carpenter of broken humanity and more of the social servant working away at causes rather than effects. If he has begun to lead beforehand he may have leading part in making the terms of the new order, otherwise he must lose out in the long run. I am persuaded, however, that just as the doctors have unselfishly to this day led every advance in the fight against the foes of life, there will be no holding back in this, to my mind, the most significant of the evolutionary processes that are changing the complexion of the world.

In the ode on the death of the Duke of Wellington, Tennyson offers an inspiring word which I leave with you:

"Yea, let all good things await
Him who cares not to be great
But as he saves or serves the State.
Not once or twice in our rough island story,
The path of duty was the way to glory.
He who walks it, only thirsting
For the right, and learns to deaden
Love of self, before his journey closes,
He shall find the stubborn thistle bursting
Into glossy purples, which out redden
All voluptuous garden roses.
Not once or twice in our fair island story
The path of duty was the way to glory."

DISCUSSION.

Dr. Rosa H. Gantt, Spartanburg, S. C.: I agree with Dr. Flannagan as to the great variation in number of defectives, however, I do not agree with him entirely in it, for it is not only between the children of the city and the country, but between the different cities. The only two cities in South Carolina in which statistics were available and where the population was composed of about the same class of people had a great variation. There were 95 per cent defective children in Columbia and 46 per cent in Spartanburg. In Manhattan from 100 per cent to 32 per cent were found defective. In Brooklyn it varied from 100 per cent to 18 per cent.

In a paper read before this section at the Jacksonville meeting, I stated the importance of a standard of inspection for the variation seems to be more in methods of inspection than in locality. Just how to get at these standards and what is necessary I am not prepared to say, but I feel that some method can be reached which would make these statistics much more important and make the people whom we hope to benefit realize much more that medical inspection is reliable and on a scientific basis. The doctor spoke about the percentage of defectives in Virginia, the schools of the county 26 per cent, and in Richmond only 6 1-2 per cent. That seems to be a very great variation and just what is the cause of that I do not know. Perhaps Dr. Flannagan can help us in that but I do hope we can get at some method by which to standardize this work and adhere to it, in order to secure reliability and uniformity of statistics.

Dr. Mosby G. Perrow, Lynchburg, Va.: I think one reason why reports of defects vary in different places, is because of the lack of trained inspectors. Another reason is that slight defects are not counted by some, and are counted by others. In Lynchburg, so far, we have found 80.1 per cent of the children with some defect that can be easily corrected and that should be corrected. We do not count defects that do not need treatment. One of the most important things is not only to detect the defects but to see that they are corrected. The chief duty of the nurse is to see that the defects are attended to. Probably about 30 per cent of the children will have parents who say that they would have their children treated, but that they lack the money. The whole thing in medical inspection is to get the children treated. We must get the city to employ a dentist to attend to the teeth and to employ a nose specialist to remove adenoids. Unless we do this, medical inspection will largely fail.

Dr. F. J. Mayer, Opelousas, La.: This paper deserves to be more fully discussed; the child is the most valuable asset of the State and since the tree is bent as the twig's inclined, it is incumbent on every community that each budding shoot should at least be given a healthy growth. The sanitary condition and surroundings of the school house is a matter, then, of tremendous moment. Unfortunately for many rural communities in the South the sanitary conditions

of the schools are appalling, especially with reference to the disposal of excreta. The school house should be in all things, and especially in sanitation, an object lesson to the whole community. In many sections it is the social center and from it and the village church radiate whatever morality and civilization is to be found in the "settlement." What a commentary then on sanitary enlightenment must some of these school houses present! How necessary a regular medical and sanitary inspection. Nay, more, how necesary that the parish priest or parson should co-operate with the medical inspector and periodically deliver a salient sanitary sermon on soap. And reference is made not only to negro schools, the majority of which like their homes are unspeakably filthy and unsanitary, but to many town and rural white schools that clearly indicate by their sanitary laches that the principal, the patrons and the school directors are five thousand years behind the times, not having progressed in the matter of sewerage disposal as far as the ancient Hebrews in the days of Moses, who obeyed the divine injunction recorded in the sixth chapter of Deuteronomy where the great sanitarian and law giver warned them that "The Lord thy God walketh in the midst of thy camp to deliver thee. . . . Therefore shall thy camp be holy that he shall see no unclean thing and turn away from thee."

Dr. Flannagan (closing): The wide gap between the results obtained from the inspection of rural and city children, to the tremendous advantage of the city child, must be influenced considerably by unknown factors, differing standards of inspection will doubtless account for some of it.

The fact is, however, that the country child is at a standstill. His defects remain defects to the end of the chapter, while earnest effort is being made to locate and correct those of the city child. The ultimate result of this takes no prophet to foresee. Practically every country child has suffered the handicap of infectious disease. In five thousand country children I found only one over twelve years of age who stated that he had never been sick with any contagious trouble; and I suspected him of lying while three-fourths had had at least four.

I am sorry there are not more general practitioners here, for this is a matter for the initiative of the country doctor. He should take more notice of the rural school. Under present conditions he is not treating his community right to neglect it. The little folks are his responsibility before they take their beds as well as after. Let him as a stimulus to his understanding go to the nearest one-room school and stand the children by ages up in a row and look them over, without attempting inspection in detail. Then go to the nearest city and repeat the experiment. The result will be an eye-opener, and as an honest man he must go home, put on his thinking cap and get busy.

SOME OBSERVATIONS AND SUGGESTIONS RELATIVE TO MUNICIPAL SANITATION.*

By W. H. Rowan, M.D.,
Chief Sanitary Inspector, Mississippi State Board of Health,
Jackson, Miss.

The development of a system of municipal sanitation in an average state, such as Mississippi, should be of more importance than a mere generalization of health principles without practical application, therefore I shall speak about things with which I am familiar.

Five years ago our state maintained a board of health in name only—examining board would have been a better name for it, that being its chief function. It met twice a year, examined numerous unqualified applicants for medical license, elected county health officers and went home. The secretary drew a salary of $500.00 a year to keep a poorly equipped office, along with that of his own. There was no laboratory, no bureau of vital statistics, no epidemiological work, no department of municipal sanitation, and withal practically no records and no appropriation.

Perhaps this condition would exist today had it not been for the advent of the Hookworm Commission, whose money with its men and educational propaganda has brought to the people, and to our legislators, a health conscience. This awakened conscience and its attendant opportunity for the legislature to discharge a duty, resulted in an increased appropriation. Through this a substantial and highly useful laboratory has been equipped, a splendid bureau of vital statistics has been built up, and municipal sanitation was established as aid to the already established system of rural sanitation.

Under an old law, fortunately passed in

*Read in Section on Public Health, Southern Medical Association, Eighth Annual Meeting, Richmond, Va., November 9-12, 1914.

yellow fever days, at a time when health laws and doctors looked good to the people, the State Board of Health is permitted to pass reasonable regulations for the control of infectious and contagious diseases; also, the violation of these regulations was made punishable by a fine or imprisonment when guilt is established before any magistrate, judge or mayor. Immediately on the establishment of the department of municipal sanitation, suitable regulations were passed, governing the keeping of public service places, such as dairies, markets, bakeries, hotels, restaurants, fruit stands, railway stations and coaches, schools and jails. These regulations have been amplified from time to time, until now all phases of public health work are fairly well covered, the more recent additions being those governing privy construction in town and county, and the destruction of fly-breeding places. The passage of these strikes right at the root of our greatest health question—the control and disposal of human feces, and were passed only after due consideration for proper enforcement.

The legal force of these regulations has been uniformly maintained by the courts to the extent that in the prosecution of nearly 1,500 violators, conviction has been comparatively easy in nearly every instance. In one-half day forty-two violators were tried, convicted and fined without a hitch.

In one instance a railroad was fined $50.00 for sweeping a coach in the presence of passengers; the attorney appealed. The commissioner said, "All right, if you want to appeal, we will make it worth while, so your fine will be $500.00." Within a few days the vice-president of the road decided to withdraw the appeal, and paid his fine. Since then that road has employed an inspector of its own to see that regulations are complied with.

So I would put down as the first requisite for an intensive sanitary campaign the fact that the State Board of Health must be empowered by the legislature to pass and enforce regulations. The old nuisance law, the moss-covered pure food law, and the decrepit anti-spit law have never served any very useful purpose, and are absolutely inadequate for modern health betterment.

The only charge against the efficiency of the regulation as compared with a code law lies in the fact that a regulation must be generally promulgated, and ignorance of such regulations is a good plea in a court of justice. Precedent set by the supreme courts says that any code law, the understanding of which requires technical or scientific knowledge, can also be met by a plea of ignorance; so after all the regulation is just as efficacious as the law itself. In our state we have overcome this almost completely by requiring the inspectors to see that the regulations are posted in each place of business.

Regulations without the machinery for enforcing them are valueless, if not harmful. Whatever success our board has attained is in a great measure due to another old code law, namely, giving the State Board of Health the right of selection, and the control of county health officers, who are also assistant sanitary inspectors. In Mississippi a health officer cannot get his commission until after he has signed an affidavit to the effect that he will enforce the regulations of the board, and will answer promptly all correspondence.

Under this requirement the removal of a few health officers and telegrams to others requiring them to come in to headquarters for explanation have had a most wholesome effect. Now most of our men are ready for any duty, even to the point of prosecuting a board of supervisors, who in our state, unfortunately, fix the health officers' salary. I doubt whether there is a state represented here today, whose health officers are more true to duty than are those of Mississippi.

Our health officers' convention, and well-defined instructions from time to time, have unified the standards of inspection, until now our organization seems to be as nearly complete as we can hope for without all-time county health officers, or, what is more in keeping with our possibilities, district health

officers such as we have in a few states, and which have made for better sanitation in the Canadian provinces.

The existence of laws and the willingness of county health officers will not be able to operate without the backing of the public; all the talking and writing and pleading for that long-time, hackneyed "stuff" called "co-operation" will not have the wholesome effect, nor will it win friends for sanitation like a few well-placed prosecutions, with plenty of newspaper publicity. No man enjoys being called dirty in our state.

We have been very fortunate in having the good will of the press. High-class papers are always willing to give publicity to a condition that needs remedying for the public welfare, and the result of the health officers' work will be measured by his ability to keep his campaign before the people. Publicity given to one well-directed prosecution against a well-known violator of the regulations will have more educational value than any amount of lecturing or pleading. If this violator is a man of influence, so much the better, the smaller fellows will make no trouble. When they see that you mean business they will either clean up or quit business.

The final attitude of the violator towards the inspector is not so ugly as one would suppose. Our experience teaches that about fifty per cent of the keepers of public service places comply with the regulations as soon as they understand them, and having complied, they will demand that others comply. Forty per cent comply when brought face to face with an affidavit, and the remaining ten per cent evade the regulations in every conceivable manner, and after being harrassed a certain length of time will leave the state. The number of Italian fruit dealers in the city of Jackson has diminished from thirty-two to four since we have required the screening of all fruit.

Occasionally one of our greatest offenders will become a most useful and sanitary citizen. Two years ago a large meat dealer was brought face to face with a heavy penalty; today on a visit to the moving picture shows you see a picture advertisement of a high-class slaughter house. He is done with the bad kind forever.

Our system is simple:

1. We have promulgated the regulations of the board through the press and in every conceivable way.

2. Regulations for each kind of business are printed on a separate slip, and are posted by the assistant inspector on his first visit.

3. Inspections are made by assistants at a designated time. The records are kept in a small manilla bound book, one book being used for each town usually. There are twenty-four leaves in the book, one leaf being used for each public service place inspected. When the inspection of the town is completed the results are summarized on the back of the book. Cut A below illustrates this back, and Cut B illustrates the leaf of the booklet. This booklet is used by both the chief inspector and the assistant inspectors.

4. These books are required to be in by a certain day; the contents as summarized on the back of Fig. A are transferred to the vertical filing card, 5 by 8 inches, which is an exact copy of Fig. A, and is then filed away alphabetically by towns, a yellow card being used for the chief inspector, a blue one of the same kind for the assistants.

The old style score card was first used, but was found to be cumbersome to carry, a time-killer, and did not allow the placing of the inspector's estimate on conditions.

5. If on inspection the keeper of a place is found to be wilfully violating the regulations, an affidavit is made before a justice and he is tried then and there.

. We have not hesitated to use the Traveling Men's Association for gathering information on hotels; in fact, the members carry report blanks in their pockets.

Questionaires on jails and poor houses have been sent to women's clubs with a great deal

Town.....Date.....Inspec. No.....
Mayor.....Attitude.....
City H. O.....At.....
Co. H. O.....At.....
W. Prin.....At.....
C. Prin.....At.....
Marshall.....At.....
Water.....Sewerage.....
Lectures.....Attend.....
At. Public.....Pres. C. L.....
No. Af.....No. Convic.....
Amt. Fines.....Judge.....
Papers.....At.....
.....

INSPECTIONS

Hotels.....Markets.....
Ct. H.....Sla. H.....
Jails.....Dairies.....
Schools.....Bakeries.....
Depots.....Frt. Stds.....
Rests.....Groc.....
So. Founts.....Barber S.....
Pop. Fac.....Launderies.....
Theatres.....Can. K.....
Ice Cr. Fac.....Miscel.....
Total.....
.....Inspector.
MISSISSIPPI STATE BOARD OF HEALTH.

A—Manilla back. Size 4 by 6 inches.

Bus.....Prop.....At.....Gr.....D.....
Building.

Floors

Walls

Toilets

Screening

Utensils

Furniture

Miscel.

Improv.....Reg.....Af.....Fine.....

B. Leaf of book contained in A.

of success, as they are especially interested in this line of work.

7. Every effort is made to secure the assistance of municipal boards and health officers. These often resent state interference, but when the State Board begins active operations, using for trial cases the district magistrate, the local authorities come to terms. Their cooperation is especially necessary for the building of consolidated slaughter houses and the establishment of meat and dairy inspection. Practically all other matters can be settled without their assistance.

RESULTS.

This year, so far, 20,752 inspections of public service places have been made, and the number is increasing with each inspection. September alone showed 4,133 inspections by the assistant inspectors. Three years ago screened fruit was almost unknown; now practically 98 per cent is screened during fly season. Then, there were but two whitewashed dairy barns in the state; now we have more than 400. Then only 48 cows had ever been tested for tuberculosis; now the number is more than 2,000. Then, there was not a clean, well-built slaughter house in the state; now nearly all are screened, whitewashed and otherwise sanitary. Then hotels and restaurants were often unscreened, with roller towels and common drinking cups evident everywhere; now you see them no more. The jails were vermin-laden and unclean throughout, and are not palaces yet, as we have found our supervisors and sheriffs hard to reach, but newspaper publicity of the past few weeks is working wonders here. Then railroads were sweeping in the presence of passengers; now they do their cleaning before they come over

the state line. Then most health officers were inefficient and considered mere figureheads in their communities; now they are becoming a vital part of the community, because they are contributors to its betterment.

One of our most prominent newspaper men, ex-president of the Press Association and a state senator of ability, a few days ago ended a health editorial in the following words:

"It is a long story to recount the fight made by the State Board. Let it suffice to say that a wonderful victory was achieved. Now the people of every city and town and village and rural community are eager to cooperate with the Board of Health in improving sanitary conditions. In every county there is an alert health officer, and a similar official is employed by every municipality. These men work under and with the State Board of Health, and the system has brought about a miraculous change."

DISCUSSION.

Dr. A. T. McCormack, Bowling Green, Ky.: Dr. Rowan's paper is so good, that I do not feel that it should be permitted to slip by us without discussion. I do not say this in the ordinary manner of specious compliment. I have attended health meetings of one kind or another for many years, and I do not believe I have ever heard any other paper which indicated more real knowledge of the actual labor involved in health work. There is nothing that can be added in discussion to such a paper, because it is complete within itself, but I do not think we should permit it to pass without expressing our appreciation of the great labor done by Dr. Rowan, which has made it possible for him to write it.

SOME EXPERIMENTAL WORK ON THE CIRCULATION OF THE TESTICLE.*

By Hermann B. Gessner, M.D.,
New Orleans, La.

In 1912[1] I reported two cases of cryptorchidism operated on by the Bevan method. In one of these the division of the obliterated vaginal process made possible the easy drawing down of the testis to the bottom of the scrotal pouch. In the other the vas was isolated with its vessels and the remaining structures of the cord double ligated and cut; the testis was then brought down to the bottom of the scrotum with a U suture.

In concluding my paper I referred to the paper[2] of Dr. Charles Davison, of Chicago, which I had read after operating on these cases. Later I had the opportunity of operating by this method on two cases, the first of which I have reported.[3] In the second case, one of bilateral undescended testis, while one testis was in the inguinal canal and easily brought down by the Davison method, the other was above the canal and very difficult to handle, in fact, the most difficult of five undescended testes in four patients, yet by the method under consideration it was brought through the canal into the shallow scrotal pocket burrowed for it, without division of a single structure in the cord.

The technic of Davison is most simply described by saying that, in the main, it consists in dividing the deep epigastric vessels between ligatures, dividing the double sheet of fascia—above and below the vessels—which lies between the transversalis fascia and Poupart's ligament, then swinging in the structures of the cord to the inner angle of the wound and suturing as in the operation for hernia. The vas is not at fault in cryptorchidism, being usually of ample length to permit the descent. The vessels, now relieved of the necessity of reaching the external ring by a circuitous route, including a double curve, are at this stage easily long enough to permit the testis to be drawn into the scrotal pouch. Here it is fixed by a suture involving scrotum and tunica vaginalis.

The practical question that arises is this: Is it worth while to go through the steps of the Davison technique in order to save the spermatic cord intact, or is Bevan right when he teaches the cutting of all the cord but the vas and its artery and veins?

*Read in Section on Surgery, Southern Medical Association, Eighth Annual Meeting, Richmond, Va., November 9-12, 1914.

The latter says:[4] "These arteries (spermatic and artery of vas) anastomose freely, and it has been shown by clinical results, as in operations for varicocele, and by laboratory experiment, that either one can be ligated without interfering with the function of the testicle."

Davison maintains that the division of the spermatic vessels and of the nerves and lymphatics that accompany them is harmful, especially to a testis already poorly developed.

I shall now give the results of my own experiments on dogs in the Miles Laboratory of Operative Surgery in the Tulane University of Louisiana.

Seven dogs were subjected to experiment, of which one died under ether, one was lost and five were carried under observation for periods varying from 44 days to 199 days.

Dog I—Operated on February 18, 1914, under ether; the left spermatic cord was exposed; the vas with its artery and the accompanying veins, two in number, was isolated and the remainder of the cord divided between two ligatures of linen. Scrotum sutured with linen. September 5, 1914, 199 days after the ligation, again under ether; scrotum reopened; left testicle about one-fifth the size of right, and much harder to the touch.

Dog II—Young dog; operated on March 2, 1914; same technique (left side); scrotum reopened July 25, 1914, 145 days after the ligation, again under ether; no trace of the left testis or cord could be found.

Dog III—Operated on April 13, 1914, by same technique (right side); July 25, 103 days after the ligation, again under ether, the scrotum was reopened; the right testis was about one-third the size of the left, and much harder to the touch.

Dog IV—Operated on April 13, 1914, by same technique (right side); scrotum reopened September 5, 1914, 145 days after ligation; a small body, about one-tenth the size of the left testis, was found.

Dog V—Operated on September 23, 1914, by same technique, with this exception, that the vas was accidentally divided (left side); scrotum reopened November 6, 1914, 44 days after ligation and division of vas; left testis about one-fourth the size of the right.

In each instance one testis alone was operated on, keeping the other as a control. The relative sizes given do not exactly represent the amount of atrophy, as the control testis uniformly increased in size to a degree difficult to measure accurately.

It will be observed that in four cases the testis whose cord was mutilated by the division between ligatures of everything but vas, artery and veins of vas, was much diminished in size. In one instance no trace of testis or cord could be found in spite of diligent search. This is puzzling and may possibly be accounted for by mistaken identity in dogs, though pains were taken to identify the animals and keep them secluded. This occurrence was in a young dog, which fact is interesting and may explain the circumstances.

In order to follow these changes still further, companion specimens of atrophied testis and control testis were submitted to Dr. Herbert Windsor Wade, Assistant Pathologist of the Charity Hospital of New Orleans, whose report in three of these pairs was as follows:

DOG I.

Control Testicle: Normal in appearance as regards size and gross structure. Microscopically, two sections of this testicle show typical normal testicular tissue. One, of testicle proper, is made up of large, cellular gland spaces showing very active spermatogenesis. Very little supporting connective tissue is present; the intertubular strands are thin and the fibrous capsule of the organ does not extend into the organ. A section of epididymis shows the tubules large and filled with sperm.

Ligated Testicle: In appearance the tissue presented is small, pale and neither on surface inspection, nor on section can it be identified as testicle. Four sections are made at different levels. Microscopically no testicular glands whatever can be made out. One section is made up largely of irregular bands and small masses of connective tissue. Many of the larger strands are hyaline in appearance. Although there is no definite arrangement of these strands, there is seen a general tendency to the formation of whorls, suggestive of the probable replacement of glandular tissue with fibrous tissue. A striking feature is the concentration of bundles of smooth muscle fibres throughout the section. The larger conducting tubules of the epididymis, etc., are apparently present in proper number but are small

and contracted. About such tubules is seen an unusually large zone of smooth muscle fibres. In one section there is, in the fibrous tissue, a greater or less infiltration of lymphoid and plasma cells with an occasional collection of a few polymorphonuclear leucocytes. One small area shows an accumulation of blood pigment.

DOG IV.

Control Testicle: Negative.

Ligated Testicle: Four sections from this tissue show a condition in the main similar to that described in that from Dog No. 3, but differing in that beside an irregular fibrosis, there is a deposit of fat among the strands of connective tissue. No recognizable trace of spermatogenic tissue is present in any of the sections.

DOG III.

Control Testicle: The section studied passes through testicle, epididymis and two layers of capsule. The picture presented is very different from that in Dog I. The individual glands are small, the interstitial tissue relatively large in amount, cellular and rich in capillaries. In few of the tubules is the lumen apparent. The basal layer in the majority show relatively few nuclei and these stain palely. The protoplasm is very "stringy' and fibrillated. Little mitosis is seen. Many of the tubules contain one or more very large cells, near the lumen. Some of these are multinucleated. The tubules of the epididymis are empty.

Ligated Testicle: The gross morphology of this is retained, though the size is greatly diminished. The tunica and a section through the entire organ is present in each of the three sections taken from different layers; while the conducting tubules are small, they are histologically normal. There is, however, no remnant of true testicular tissue; this is represented by areas of fibrosis, in which are quite numerous blood spaces. In one section an area of considerable size is seen, in which there are few but large pigmented phagocytic cells, with occasional strands of connective tissue. This is suggestive of the resolution of hemorrhage.

In my own experimental work the aim was to allow sufficient time to elapse so that collateral circulation and compensatory increase in vessel calibres might develop and the final result of the ligation might show. It is interesting to see the results of experimental work done by Miflet[5] many years ago, showing the early changes caused by ligation. He made five experimental ligations of the spermatic artery and of the veins of the cord, isolating the vas, deferential artery and their veins. The affected testis was removed in 48 hours, 72 hours, 5 days, 4 weeks and 6 weeks, his longest period of observation being 42 days, as compared with 44 days in my shortest period. He reports the testis enlarged in all but the six weeks' observation, in which it was of normal size. Microscopically the reports were, in order:

No. 1, "parenchyma red, edematous;" No. 2, "beginning degenerative changes, parenchyma cells lack definition;" No. 3, "parenchyma cells not distinguishable;" No. 4, "complete degeneration of parenchyma;" No. 5, "practically same as in No. 4."

I believe that a strong case is established by these ten observations, five early and five late, against any avoidable division of the whole cord excepting the vas, its artery and veins. So far as clinical results are concerned, it must be remembered that when operations of this kind are performed on one of a pair of organs the function of the sound organ cannot be eliminated. I believe that if the testis were a single organ the functional results of the mutilation done in one form of the Bevan operation and in the varicocele operation, as frequently practiced, would long since have led to the elimination of these methods.

BIBLIOGRAPHY.

[1] "Two Cases of Cryptorchidism Operated on by the Bevan Method," by Hermann B. Gessner, M.D., New Orleans, La. N. O. Medical and Surgical Journal, April, 1912, pp. 782-784.

[2] "The Surgical Treatment of Undescended Testicle," by Charles Davison, M.D., Chicago, Ill. Surgery, Gynecology and Obstetrics, March, 1911, pp. 283-288.

[3] "Davison's Operation for Undescended Testicle," by Hermann B. Gessner, M.D., New Orleans, La. N. O. Medical and Surgical Journal, March, 1913, pp. 641-643.

[4] Keen's Surgery, Vol. IV, pp. 588-615.

[5] Dr. J. Miflet, Archiv f. Klin-Chirurgie, Bd. XXIV, pp. 399-428.

DISCUSSION.

Dr. Joseph A. Danna, New Orleans, La.: I would like to have Dr. Gessner briefly tell us how much of the cord he ligated. I did not quite get the point.

Dr. J. Shelton Horsley, Richmond, Va.: This

paper of Dr. Gessner's is so extremely interesting that I feel there should be some discussion, even if I have to discuss it.

The things that Dr. Gessner has brought out so completely establish his conclusion that there can be no adverse criticism. Common sense would teach us that the testicle requires a large artery, which is the spermatic, and a small artery, with the vas, and if you indiscriminately cut off practically all the veins and the large artery, as recommended in some operations, you must, in a certain proportion of cases, expect bad results.

The question of nutrition to a part is quite a broad one, and I think all cases of cirrhosis directly or indirectly involve the question of nutrition. The different stages gradually merge into one another, and there is a cutting off of nutrition so as to produce death or gangrene. On the other hand, cellular degeneration may occur, in which you have marked atrophy, such as Dr. Gessner has just described so clearly in the case of the testicle. Dr. Gessner's work is founded on such good common sense and scientific experimental methods that he proves his case absolutely. Where you cut off the main blood supply indiscriminately, you put in jeopardy the organ which is involved.

Dr. Williams, U. S. N., Norfolk, Va.: The last speaker referred to varicocele, and I wish to speak on that subject.

In my work at the Naval Hospital at Norfolk, I have not been at all satisfied with the results in operations for varicocele. A few years ago when I was a little younger and perhaps less experienced, I used to think a varicocele operation was of but little importance, but now that I have done more of them I have found that the operation not infrequently is followed by atrophy or hydrocele. I believe that we have got to be extremely careful how many of the veins we remove and how we block off the blood supply. At Norfolk, recently, we have combined the resection of the veins with the Jaboulay "bottle" operation of the tunica vaginalis. That operation will prevent the subsequent hydrocele, but it will not prevent the subsequent atrophy and loss of function of the testicle, if you have to cut out too much of its blood supply.

Dr. F. G. DuBose, Selma, Ala.: In this discussion I would ask opinions as to the relative dangers of leaving the testicle in the inguinal canal, of returning it within the abdominal cavity or of bringing it into the scrotum where the vessels are so short that it is impossible to get it satisfactorily low enough in the scrotum. What has been the experience of those here as to the results following the return of the testicle within the abdomen?

Dr. Gessner closes: Taking up, first, the question of Dr. Danna: in the lower animal as well as in the human species, if you separate the vas to one side you see not only that minute artery which turns and twists very much like the Mississippi River, but you see, also, two little veins which are easily separated to one side with the vas and its artery. Judging by the description of Miflet, these were the vessels divided in his experiment; they were the ones I divided.

I am glad this question was put, because varying results may be due to difference in technique; it may be one man cuts off more than another.

I am very much interested in Dr. Horsley's discussion because of the particular attention he has given to vascular surgery. It is an important point—the matter of the blood supply of organs, and it would seem strange if in other organs we have to preserve a good blood supply, and yet, in this instance, a very small supply only could be preserved without detriment. I do not believe it is true.

So far as varicocele is concerned, I have for a long time felt dissatisfied with our technique for varicocele. In some cases I got hydrocele; in other cases I got a great, thickened testis which after a time atrophied, and for some time I hesitated to operate in my varicocele cases. Lately I have used for varicocele the technique that Kocher of Bern, recommends in his text book. I make the high incision and getting out the cord, take out several inches of two large veins, leaving the other tissues intact, and that has given good results. In one case the patient came back complaining of his old pain, and I went back and took out some more vein and it was all right afterward. I did not feel ashamed about that, because it is better to take out too little than to take out too much.

TETANY FOLLOWING PARATHYROIDECTOMY, WITH REPORT OF A CASE FOLLOWING A PARTIAL THYROIDECTOMY.*

By George Ben Johnston and S. W. Budd, M.D.,
Richmond, Va.

In the early days of thyroid surgery it was noted that the removal of the thyroid was frequently followed by cachexia and tetany. These symptoms were attributed to the loss of too much thyroid tissue. In 1880, Sandstroem discovered the parathyroids and the same year Weiss, in Vienna, described for the first time tetany following thyroidectomy. Eleven years after Sandstroem's discovery, Gley showed that tetany was invariably a sequel of parathyroidectomy, and a year or so later Moussu demonstrated that cachexia, myxoedema and chronic trophic disturbances followed thyroidectomy, while acute tetanic symptoms re-

*Read in Section on Surgery, Southern Medical Association, Eighth Annual Meeting, Richmond, Va., November 9-12, 1914.

sulted from complete parathyroidectomy. Additional information as to the anatomy and function of the parathyroids have been added by Halstead, MacCallum, Beebe, Berkeley, Erdheim, Pineles and others. Improvement in operative technique, brought about by the careful and painstaking efforts of men like Halsted, Mayo, Kocker and Billroth, has minimized the dangers of thyroid surgery. Complete extirpation of the gland has been replaced by a partial thyroidectomy, and as a result post-operative tetany is a very rare occurrence. Kocker reports five cases in his last 1,000 goitre operations, while Frasier was able to collect eight cases, three of which were fatal, in 2,000 thyroid operations.

It is our purpose in this paper to put on record a case of tetany of fatal termination following a partial thyroidectomy and to bring before the profession some of the salient points in the anatomy, physiology and pathology of the parathyroids.

Anatomy.—The parathyroids are small epithelial bodies about 6 to 7 mm. in length, 3 to 4 mm. in breadth, 1 to 3 mm. in thickness, situated on each side of the neck behind the lateral lobes of the thyroid. Normally there are present in man four parathyroids. They are arranged in pairs an upper (external) and a lower (internal), and they lie in the areolar tissue between the capsule and the thyroid gland. They may, however, be in contact with the thyroid, with the capsule or with both. The inferior thyroid artery and recurrent laryngeal nerve pass up in front and internally to the glandule, and the superior bodies can usually be found at the entrance of the end branches of the inferior thyroid artery.

The parathyroids show great symmetry. In some cases as many as four are found lying on one side, in other cases none are found. The inferior (internal) bodies are less constant both as to position and presence. They sometimes lie against the side of the trachea underneath the thyroid and other times they are situated well below the lobes of the thyroid. The upper (external) glandules occupy a position behind the lateral lobes of the thyroid on the posterior wall of the oesophagus at the level of the cricoid cartilage. The upper glandules have been found as high as the inferior of the thyroid cartilage. Halsted states that "one is likely to encounter these little bodies, usually two on each side, at any level from the superior to the inferior pole on the posterior-lateral surface of the gland, but most often just internal to the rounded posterior external border and quite regularly near the site of distribution of the terminal branches of the inferior thyroid artery."

The parathyroids are supplied with blood by minute arteries arising from the branches of the inferior thyroid artery. These little arteries are about ½ to 2 cm. in length. They enter the hilum of the glandules and give off branches which spread towards the periphery from which numerous capillaries arise (Oschner). Vascular connections between the capsule of the thyroid and the parathyroid gland are also found, but these have been shown to consist of a few minute capillaries. The parathyroid arteries may arise from the superior thyroid arteries (Pool), and also from the anastomosing channels existing between the inferior and superior thyroid arteries (Halsted). The veins enter the inferior thyroid vein either directly or by the intermediary of the veins which cover the surface of the thyroid gland.

The recognition of the parathyroids at operation is no easy matter. Rogers and Ferguson, out of 189 supposed parathyroids examined, found that 61 were true parathyroids, while Ruleson was able to identify about 41 per cent of supposed parathyroids. We can never say with any degree of certainty whether or not we have parathyroid tissue until a microscopic examination of the tissue is made. Many of the so-called parathyroids on microscopic examination have proven to be adenoid tissue, fat, thyroid, etc. As a rule the yellowish or yellowish brown color aids in the differentiation of the parathyroid from the

thyroid, but even the color difference is not so striking as we are led to believe.

If they can be recognized in about one-third of the cases under favorable conditions, we can readily see how easy it would be for a surgeon, hurrying to finish a difficult operation, to overlook them, especially if the field of operation is bloody and the exposure is poor. As a matter of fact the parathyroids are seldom seen at operation and a number of surgeons, except for leaving a small portion of the thyroid, ignore their presence.

Physiology.—During the past few years workers with the adrenal, thyroid and hypophysis have added invaluable information concerning the function, physiology and therapeutics of these bodies. Unfortunately the experimenters with the parathyroids have not kept the pace set by the investigators with the other ductless glands. The literature on the parathyroids is large, but not conclusive. There is considerable evidence that the parathyroid in some fashion presides over the calcium metabolism, and from this evidence has arisen the hypothesis known as the calcium deficiency theory. There are, of course, other theories as to their functions, but the mere fact that there exist so many makes us skeptical about the correctness of any one of them. Beebe and Berkeley have brought forth facts that would seem to indicate that the parathyroids have something to do with the neutralization of certain toxic products arising in metabolism. That the parathyroids exert a powerful influence over metabolism can no longer be doubted, but the nature of this influence or the character of its internal accretion, if it has one, is still veiled in obscurity. We do know, however, that these little bodies are essential to life, for the extirpation of them is followed by death in two to ten days.

MacCallum, Voegtlin, Cybulski, Quest and others have found a low calcium content in the convulsive stage of tetany. Cybulski worked with tetany of gastric origin and concluded that tetany was due to a calcium deficiency in the central nervous system. MacCallum, on the other hand, experimented with parathyroidectomized animals and arrived at the conclusion that tetany was produced by a calcium deficiency in the peripheral system and is dependent on some change in the blood. It would be well, I think, to combine the two theories and say that the hyper-excitability in tetany may be peripheral and central in origin.

MacCallum's contention as to the seat of action in tetany after parathyroidectomy is certainly backed up by some exceedingly interesting as well as some very scientific work. He showed that the blood of an animal in tetany transfused into the vessels of a normal animal did not produce in the normal dog characteristic tetany nor a marked change in the excitability of the nerve. This, of course, can be explained by the fact that the parathyroids in the normal animal protected him from tetany. If, however, the leg of a normal dog be isolated with the exception of the nerves which remain intact with the spinal cord and the vessels of the normal dog be connected with the vessels of a dog in tetany (parathyroidectomy) so that the leg of the normal dog is bathed with tetany blood, the nerves of the normal dog assume the characteristic hyper-excitability of tetany and the twitchings may even occur. Re-establishment of the connection with the normal circulation brings back the excitability to normal.

In brief, the calcium theory states that the symptoms of tetany following parathyroidectomy are due to the hyper-excitability of the nerve cell caused by a withdrawal of the calcium from the nerve cells. Tetany thus produced can be controlled by large intravenous doses of the calcium salts.

MacCallum says that the parathyroid glands in some manner influence the calcium metabolism and that the surgical removal of the gland is followed by a rapid excretion amounting to a calcium diabetes analagous to the dextrose diabetes following the extirpation of the pancreas. The calcium content is thus reduced to such an extent that tetany results. The rapid excretion has been found in a number of dogs

after parathyroidectomy and the evidence of a low calcium retention is found in the fact that a dog dead from tetany had a lower content of calcium in his brain than was found in the brain of a normal dog.

Sabbatini's experiment with trisodic nitrate, a salt of citric acid, which renders calcium inert, also lends strength to the statement that tetany is produced by a calcium insufficiency. He showed that the intravenous injection of trisodic citrate was followed by convulsions, and muscular twitching similar to those following a removal of the parathyroids. These symptoms were due, perhaps, to the fact that soluble calcium salt in the body fluids were used up by trisodic citrate and as a result no calcium was available for physiological reactions. He also showed that the symptoms thus produced were remedied by a large intravenous dose of calcium.

Morel and Erdheim and others have demonstrated that in parathyroidectomy the skeleton is very much altered and that fractures are easily produced, and that they heal very sluggishly. Erdheim was able to produce in young animals lesions resembling rickets and in older animals lesions similar to osteo-malacia. The rickets, osteo-malacia and other bone conditions were relieved by the administration of parathyroid extracts or by the transplantation of a parathyroid.

The work of MacCallum and Voegtlin, Sabbatini and others pretty well establishes the fact that there is a diminution of calcium in the body fluids during tetany. Whether or not tetany is produced by this lessening of calcium is an open question. Berkeley and Beebe, in a very able publication, have attacked calcium deficiency as a cause of tetany. They believe that tetany following a parathyroidectomy is due to some metabolic derangement in which there is a large increase in the excretion of ammonia. They admit, however, that there is a calcium deficiency in tetany, but think it a secondary factor in the production of the symptoms. They have been able to produce symptoms similar to tetany by large doses of ammonia and zanthin; this in the presence of a normal calcium content of body fluids would somewhat weaken the calcium deficiency theory. They were able to control symptoms thus produced by large intravenous doses of calcium salts.

Edmunds, in the *Journal of Pathology and Bacteriology,* July, 1913, reports the results of experiments with various diets in thyroparathyroidectomized animals. He was able to keep dogs alive on a milk diet for many months. When meat plus the same amount of calcium salts contained in milk was substituted, the dog became thin and weak, but had no tremors; later he became moribund and had to be destroyed. The question arises as to the nature of the toxin causing the dog's death. It may be due to hypothyreosis or to hypoparathyreois, or to both. It seems strange that milk should protect the animal while meat plus the same amount of calcium caused the animal to waste and die. We know that milk is the very best way to administer calcium and it may be that the assimilation of calcium from the milk kept the dog in good shape. On the other hand, calcium lactate is very easily taken up by the system, especially if there is a want created. It is reasonable to assume that the poisons arising in meat metabolism had something to do with the dog's death. Berkeley and Beebe showed that symptoms of tetany following parathyroidectomy were more severe on a meat diet than on a milk-bread diet.

Objections to the calcium deficiency theory have arisen on the grounds that the action of calcium in controlling tetany is a mass action. Calcium, as does magnesium and strontium, lowers the excitability of the nerve cells and tetany is just as easily controlled by magnesium and strontium as it is by calcium. The benefit accrued by giving heroic doses of calcium may be explained by the extra calcium rather than a calcium deficiency. Finally, if the symptoms of tetany were produced by a calcium deficiency we would think that bleeding would augment them. As a matter of fact,

bleeding, followed by intravenous infusion, tends to relieve the condition. We all know that such a procedure is well suited to free the body from circulating poisons.

Before leaving the theories as to the function of the parathyroid, mention might be made of the belief of Forsyth that the parathyroids are glands essentially thyroidal in nature, possessing a peculiar function but engaged in the active secretion of the same substance as the thyroid gland. He thinks that parathyroid tissue may develop into thyroid tissue, and he sees a likeness between the interstitial cells found in the thyroid and the cells found in the parathyroid. The interstitial cells probably represent intermediary stages. Forsyth's views as to the function of the parathyroids are, in my opinion, considerably weakened when we consider the embryology of the thyroid and parathyroid. They both arise from the endoderm and from the pharynx. The parathyroids develop from the third and fourth gill pouches, while the thyroid begins as a median evagination of endoderm on the ventral side of the pharynx. It is just as reasonable to assume that the pancreatic tissue develops into liver tissue as to assert that the parathyroids give origin to the thyroid. Such a state of affairs would be contrary to the law of "genetic restriction."

How much of the parathyroid tissue is essential to life? In the light of our present information we are not in a position to say. The irregularity in location and the variation in the size of the glandules complicate this question. The dogmatic statements of Berkeley that seven-eighths of the glandules in rabbits and three-fourths in man may be removed with safety should be accepted with considerable reserve. A large portion of the parathyroid tissue can be removed without an apparent effect on the animal, but if the remaining tissue is removed the animal succumbs in two to ten days with symptoms of tachycardia, tremor, convulsion, loss of appetite, hurried breathing and emaciation. We often encounter the same train of symptoms following an almost complete parathyroidectomy, but instead of the animal dying, the symptoms clear up and the animal regains his normal health. This clearing up of symptoms, so to speak, is explained by the hypertrophy of the remaining parathyroid tissue to such an extent that it is able to carry on the function of the parathyroid. Berkeley has been able to demonstrate a compensatory hypertrophy of the remaining parathyroid tissue following a partial parathyroidectomy.

It should be borne in mind that the symptoms of tetany following parathyroidectomy do not always arise from the removal of parathyroid tissue. Shutting off the circulation of the parathyroids or clamping the parathyroid arteries is just as potent a factor in the production of tetany as the actual removal of the gland. Symptoms from this cause are delayed and are not so severe in character as those following a complete parathyroidectomy because absorption from the glandules takes place. Surgeons should be very careful in the dissection of the thyroid, especially in the region of the posterior capsule. A misplaced clamp or a clamp containing a large amount of tissue would do untold damage to both the circulation and to the parathyroid itself. The assistant, as a rule, is the cause of these mishaps, for it is his duty to attend to hemostasis If the operation is the least bloody, he is liable to lose his head and clamp recklessly. The selection of a competent assistant in a thyroid case is of supreme importance.

Operators on the thyroid have frequently encountered a condition known as "acute thyroidism." The patient may exhibit tremors, convulsions and other symptoms seen in the toxaemia following parathyroidectomy. So much alike are acute thryoidism following thyroidectomy and hypo-parathyreosis, or status parathyroprivus, that Berkeley states "that so-called acute thyroidism is due to the removal of too much parathyroid tissue." We see, of course, all grades of acute thyroidism. Some patients die and others do not. In the latter cases, according to Berkeley, "remnants of the

parathyroid left behind have had time to hypertrophy."

Pathology.—The pathology of the parathyroids, while little is known of it, offers a fertile field for speculation. Gley, in 1891, first called our attention to the fact that tetany invariably follows complete parathyroidectomy. Since that time a number of diseases, exophthalmic goitre, paralysis agitans, eclampsia, epilepsy, tetanus tetany in childhood and similar conditions, have been attributed to a hypoparathyreosis brought about by some pathologic process in the parathyroids. Pathologists have been able to demonstrate pathologic changes—fatty degeneration, fibrosis, etc., in practically every disease in which tremor and convulsions are prominent symptoms, but these findings are by no means constant. Ochsner sums the question up when he says "that attempts to establish a symptom complex for diseases of the parathyroid have been due to the results of physiological experimentation rather than histological findings, and a great range of diseases, in which tetanic symptoms are present, has been advanced as due primarily to deficiency in parathyroid secretion. In many of these diseases, however, examination of the parathyroids has failed to reveal constant morphological changes when symptoms were such as to suggest severe or complete loss of their functioning power."

Treatment.—The immediate grafting of the parathyroids removed at operation offers the best method of treating a case of tetany following parathyroidectomy. Unfortunately, such a procedure is accompanied by almost unsurmountable difficulties. The difficult recognition, the variation in size and location, complicate the parathyroid picture. No surgeon at the time of operation can tell whether or not the symptoms of tetany will develop. A large percentage of them ignore the possibility entirely. We would suggest that surgeons, as a whole, pay a little more attention to the removed thyroids, especially with a view of finding a parathyroid. This little structure could be put in Locke's fluid and kept for an emergency. Think of the possibilities that lie in the simple procedure of an intramuscular graft of the patient's own parathyroid.

Brilliant results have been obtained by the transplantation of a parathyroid from a healthy individual. Pool reports a case so treated—the symptoms of tetany cleared up almost immediately. Human parathyroids are not always obtainable, and in this event parathyroid tissue from a foreign species could be used. The gland itself may be transplanted or an emulsion or extract of the gland may be employed. Branham reports a case of tetany cured by a subcutaneous injection of parathyroid emulsion.

That a parathyroid graft does good in post-operative tetany can no longer be doubted. Whether we effect a cure or whether we tide the patient over the acute hypo-parathyreosis that follows the removal of too much parathyroid tissue is something we are not in a position to state. The parathyroids have been implanted in the sheath of the rectus muscle, in the muscle proper and in other places, and although with no attempt at establishing the circulation, the gland apparently lives along its peripheral portion and dies in its central portion. Halsted states that there must be a need for the parathyroid secretion before a graft will take, and further that a parathyroid graft from a like species will grow better than a parathyroid of an alien species. He was able to keep a dog alive and well with the graft for several months. The efficiency of the graft was proved by the fact that the removal of it was followed by death of the animal in tetany. At autopsy no trace of parathyroid tissue was found.

MacCallum has been able to control the symptoms of tetany by large intravenous doses of soluble calcium salts. His observations have been confirmed by a number of observers and as a consequence the calcium treatment for tetany has come into existence. MacCallum states that calcium is not a curative measure for tetany, but it seems to temporize until the remnants of the parathyroid tissue can carry

on the function of the parathyroid gland. In our case there was some improvement following large doses of calcium, but this was temporary, and the patient soon relapsed into symptoms just as severe as they were before the administration of the calcium salts.

Case Report.

Mary Davis, colored. Married.

Complaint—Entered Memorial Hospital March 15, 1914, complaining of an enlargement in the neck, which caused her considerable inconvenience both in her dress and in her swallowing of food.

F. H.—Unimportant.

P. H.—Unimportant, save for the fact that she had an operation about eight years ago, and at this operation five pounds of goitre, which on microscopical examination proved to be the simple colloid goitre, was removed. Her post-operative course was extremely stormy. For the first two or three days following this operation her pulse and temperature were high, and she lay in a state altenating between stupor and excitement. She recovered, however, and returned home with a fairly symmetrical neck.

P. I.—Several years ago a swelling, which has grown steadily until it has reached its present dimension, appeared in the region of the thyroid. The tumor, as stated above, interfered with dress and also with deglutition. Patient has neither lost nor has she put on weight. She says that she can thread a needle and do delicate pieces of work without any tremor. There has been no diarrhea or constipation. She has not suffered with palpitation of the heart, shortness of breath or edema of the ankles.

Physical Examination—Her physical examination revolves itself around the differentiation of the type of goitre with which she is suffering.

Face—No exophthalmus. Pupils equal. Von Graefe's sign negative. Skin natural-looking and hair does not seem to be particularly coarse.

Neck—Enlargement in region of the thyroid about the size of croquet ball, chiefly located on the left side. The swelling also extends across the midline and slightly to the right. On palpation the mass is soft and no thrill is felt. On auscultation no murmur is heard.

Heart—Normal in outline, regular in rhythm. Sound distinctly heard at apex and base; no murmurs. Heart beats 70 to 100 per minute.

Extremities—No edema. No tremor. Reflexes active, but not increased.

Blood and urine negative.

Operation—Under ether anesthesia on March 18, 1914, patient's thyroid was removed except for a piece on each side of the neck about the size of a bantam egg. The portion left behind was that situated near the upper pole of both lobes. The operation was attended with considerable difficulty owing to the confused anatomical relations brought about by a former operation. There were numerous adhesions to and in the region of the thyroid, so that it was impossible to do what might be styled a bloodless operation. Hemorrhage was profuse and many hemostats were used to check it. She was closed in the usual fashion and at the end of the operation was pronounced a good operative risk.

Post-operative Course—The first twenty-four hours following operation were uneventful except for a slight rise in pulse rate towards the end of that period. Thirty hours after the opeation she became restless and showed twitchings in her facial muscles as well as in the muscles of her extremities. Morphine was given, but with no effect. Twitchings made way for tremors, which gradully grew more intense. The tremors were followed by mild convulsions which became more severe. Death followed fifty-two hours after operation. The convulsions were clonic in character and they lasted about one minute with an interval in between attacks of three to five minutes. During convulsion patient would rest on back of head and heels so that a hand could be placed between back and mattress (opisthotonos). Attacks were initiated by a flow of saliva from the mouth and a rotation of the jaws. Pulse towards the end reached 200 and respirations varied between twenty and fifty per minute. Temperature remained around 100.

The patient was given frequent hypodermics of morphine, three intravenous injections of thirty grains each of calcium lactate, and also several doses of calcium lactate by mouth and by rectum. In all she had three drams of this drug. The intravenous injections were followed by temporary abatement of the symptoms.

This case represents a fulminating tetany, with fatal termination sixteen hours after the first appearance of a hypoparathyreosis (which followed a partial thyroidectomy). Calcium salts in large doses were tried, but with no effect.

An extensive search for the parathyroids has failed to reveal them. No less than 100 bits of suspicious material has been sectioned, but no vestige of these bodies has been seen.

The portion of the thyroid removed was about the size of an orange. It is irregular in outline and shows bosses ranging in size from a pea to a walnut. The smaller bosses were made up of young thyroid tissue with an insignificant amount

of colloid material, the larger ones contained relatively more colloid substance. Microscopically the goitre corresponds very closely to the simple colloid variety.

In conclusion, we would like to emphasize the following points:

First. The asymmetrical arrangement of the parathyroid, especially in the face of an enlarging thyroid and more especially when a former operation has been resorted to.

Second. Difficult recognition of the parathyroid.

Third. The necessity of selecting a competent assistant for a thyroid operation.

Fourth. The importance of an examination of the removed thyroids before the tissue becomes infected, with a view of finding a parathyroid.

Fifth. The belief that tetany may result from the destruction of the glandules or from the shutting off of the parathyroid circulation.

Bergeim, Olaf; Stewart, F. T., and Hawk, P. B.: Calcium Metabolism After Thyroparathyroidectomy. Jour. Exp. Med., September, 1914.

Berkeley, Wm. N., M.D., 1906: Some Studies in the Comparative Aanatomy, Physiology and Pathology of the Parathyroid Glandules. Medical and Surgical Report Presbyterian Hosp., New York, v. 7, March, pp. 170-184.

Berkeley, Wm. N., and Beebe, S. P., 1909: A Contribution to the Physiology and Chemistry of the Parathyroid Gland. J. Med. Research, Boston, N. S., v. 15, pp. 149-173.

Branham, Joseph H, 1908: Tetany Following Thyroidectomy Cured by the Subcutaneous Injection of Parathyroid Emulsion. Ann. Surg., Philadelphia, v. 48, pp. 161-164.

Erdheim: Frankfurter Z. Path., 175-250.

Edmunds: Jour. Path and Bacteriology, July, 1913.

Ellis, A. G., 1908: Recent Literature on the Parathyroid Glands. Am. Med., Burlington, Vt., v. 14; N. S., v. 3, January, pp. 32-42.

Forsyth, David (Asst. Phys. Charing Cross Hospital), 1907-1908: The Parathyroid Glands. Quarterly Jour. Med., Oxford, v. 1, pp. 150-172.

Halsted, W. S.: Amer. Jour. Med. Sci., 1907, v. 134, p. 1; Jour. of Exper. Med., 1909, v. 11, p. 175.

Halsted and Evans: Ann. of Surg., 1907, p. 489.

Mayo, C. H., 1909: The Parathyroid Question. Ann. Surg., Philadelphia, v. 50, pp. 79-83; 345.

Morel: Compt. Rend. Soc. Bioch., 67-780.

MacCallum, W. G.; Davidson, C. F., 1905: Further Notes on the Functions of the Parathyroid Glands. Med. News, New York, v. 86, April 8, pp. 624-633.

MacCallum and Voegtlin: Johns Hopkins Hospital Bulletin, 1908, v. 19, p. 91; Jour. of Exper. Med., 1909, v. 11, No. 1, p. 118.

MacCallum, W. G., 1911: The Seat of Action in Tetany After Parathyroidectomy. Proc. f. the Soc. f. Exper. Biol and Med., New York, v. 9, pp. 23-24.

MacCallum, 1912: The Function of the Parathyroid Glands. Jour. Am. Med. Assn., Chicago, v. 59, August 3, pp. 319-323.

Pfeiffer, Hermann, and Mayer, Otto, 1907-1908: Experimentelle Beitrage zur Kenntnis der Epithelkorperchenfunktion. Mitt. a. d. Grenzge b. d. Med. u. Chir., Jena, v. 18, pp. 377-440.

Pfeiffer, Hermann, 1909: Die neueren Forschungsergebnisse ueber den Bau und die Funktion der Epithelkorperchen. Mitt d. Ver. d. Aerzt e in Steiermark, v. 46, Maerz, No. 3, pp. 61-97.

Rogers and Ferguson: Amer. Jour. Med. Sci., 1906, p. 811.

Rulison: Anatomical Record, July, 1909.

Sabbatini's Experiment with Trisodic Citrate. Cited by Berkeley and Beebe Jour. Med. Research, Boston, N. S., v. 15, pp. 149-173. 1909.

Pool, Eugene H.: Post-Operative Tetany; Parathyroid Transplantation. Ann. Surg., Philadelphia, v. 56, pp. 804-807.

Werelius, Axel, 1915: Do the Parathyroids Functionate in Intrauterine Life? Surg. Gynec. and Obstet., Chicago, v. 16, pp. 141-14-144.

Binnie's Operative Surgery. Pub. 1911.

Keibel & Mall's Embryology. Pub. 1912.

Adami's Pathology. Pub. 1909.

Ochhner's Treatise on Thyroid and Parathyroid Glands. Pub. 1910.

Piersol's Histology and Anatomy. Pub. 1913.

DISCUSSION.

Dr. R. L. Payne, Norfolk, Va.: I haven't very much to say on Dr. Budd's paper in the matter of a discussion, but it is entirely too good a paper, and there were too many important points brought out by Dr. Budd, not to have some little emphasis paid to it.

One little point I have observed in the hospitals and in my own work: The promiscuous clamping of free hemorrhage in the endeavor to follow out the teachings of the various men who have been our forbears in thyroid work in the idea if we do not properly and completely control hemorrhage in these cases, we will permit an escape of thyroid fluid and the patient become toxic.

Many of these cases of tetany are due, not to a removal of the para-thyroid per se, but, as Dr. Budd has so strongly brought out, a cutting off of the circulation to the particular thyroid gland, and a diminishing of the secretions therefrom. I think we should sponge carefully in these operations and only clamp in the most careful manner.

Dr. J. H. Carter, Memphis, Tenn.: Mr. President: I did not have the pleasure of hearing all the paper, but I think most all surgeons tell you not to go inside the capsule; but I wish to say I have found it much easier to go into the capsule, and thereby you will not interfere with the parathyroid. You can trim off as much as you

like of the capsule and close over. It is much easier to enucleate the gland and there is no danger of removing the parathyroids. This I think is a very important point to be remembered.

Dr. Budd closes: There is nothing further I would like to say except that after her first operation she gave symptoms which lead us to believe that she suffered with "acute thyroidism." We believe now that the symptoms were due to insufficient parathyroid secretion rather than to insufficient thyroid secretion.

The patient had a thyroid weighing five pounds, which was removed at the first operation, and when healing took place there was considerable distortion of the structures of the neck. At the second operation we had considerable difficulty in removing the tayroid, the operation was extremely bloody, and both Dr. Johnston and his assistant were forced to use numerous clamps to arrest the hemorrhage. This brought about the idea (by no means a new one) that the clamping of the thyroid or parathyroid will produce tetany. We are now carrying on a series of experiments along these lines—destroying the parathyroid with the clamp and shutting off the parathyroid circulation. I had a dog to die yesterday with violent tetany, produced by the destruction of the glands with an arterial clamp. I wish to emphasize this point, especially to the men doing thyroid surgery.

SAFEGUARDING IN PROSTATECTOMY.*

By Southgate Leigh, M.D., F.A.C.S.,
Norfolk, Va.

Surgeon in Charge, Sarah Leigh Hospital.

Up to a comparatively short time ago the subject of prostatectomy has been a "bug-bear," not only to the general practitioner but to the surgeon as well. Even in the hands of the expert there was always much doubt as to the outcome. This, of course, was due largely to the fact that the patients were usually old, with poor resisting power, with bad bladders and kidneys and often in bad general condition, both mentally and physically. And yet, without operation what was there to hope for? The starting of catheter life was usually the beginning of the end. Some conservative surgeons unwilling to risk the dangers of the radical operation, temporized by supra-pubic drainage. But this was only a makeshift and served to render the patient more miserable. Many an old man with a constitution good for his age, has gone prematurely to his end for the lack of a simple and safe procedure for the handling of prostatic obstruction. The best operators the world over have been experimenting with various methods of relieving the situation, first one of simple mechanical obstruction, but later rapidly developing into a dangerous condition on account of complications and physical suffering. It is not necessary, before this audience, for me to picture the distressing condition of the old men with enlarged prostate and its attendent troubles, both physical and mental. We have all of us seen and pitied them and hoped for the day when surgery could offer a safe method by which they could be handled.

Of course the surgeons have very properly complained that such cases have usually waited too long, have not applied promptly for relief while yet in safe physical condition. The general practitioner could very well reply that the surgeon was to blame for not being able to offer a method of handling these cases in a safe and more practical manner. However that may be, the fact remains that in the past there has been untold suffering and going to pieces of the old men with prostatic hypertrophy, and that those who were finally driven to apply to the surgeon usually came when they were practically "played out," from infection and other complications. If every man with beginning prostatic enlargement could be induced to seek surgical relief, the problem would be a much simpler one. But we all know that practically all of them go on for months and even years with an increasing amount of residual urine and do not apply for relief until there is either complete retention or infection.

As before stated the condition of this class of cases has been most distressing and the

*Read in Section on Surgery, Southern Medical Association, Eighth Annual Meeting, Richmond, Va., November 9-12, 1914.

result of operation both as regards physical suffering as well as mortality has been far from encouraging.

The problem confronting the surgeon has been a complex and difficult one. There has been nothing especially hard about the operative procedure, but the burden on the surgeon has been to make it safe and free from distressing features.

I believe that the time has finally arrived when we can say to these patients that they can be looked after with practically no risk, with comparatively little discomfort and with a bright outlook for a prompt and permanent cure. In the plan which I shall describe briefly, there is nothing entirely new or original, but rather a combination of simple and safeguarding methods.

The preparatory treatment is of the utmost importance and requires one or two weeks or even longer. The patient's general condition both physical and mental is looked after thoroughly, the heart, blood vessels, stomach and kidneys being all gotten in the best possible shape. The mental condition is often of extreme importance. The patient should be kept bright, lively, hopeful and generally in good spirits. Nothing will militate more against success in the cases of old people than despondency. The bladder has to be washed out twice a day and the catheter used even more frequently, if necessary, strict cleanliness being observed. The drinking of large amounts of water is of prime importance. If catheterizing is painful or difficult it is often wise to make a preliminary supra-pubic opening either under local anesthesia or under nitrous oxide oxygen for drainage and irrigation. The patient should not be kept in bed. In the subsequent operation the same wound is used, being stretched by the finger and enlarged further when necessary. Not until the patient has been gotten in the best condition possible in his case is the radical operation to be performed.

By far the most important part of the operative proceedure is the anesthesia. Ether has a particularly bad effect on old people. One never knows when to expect trouble from it. It irritates the kidneys, (the chief danger in prostatic cases), it irritates the lungs, it upsets the stomach and it leaves the patient in a miserable mental condition. Chloroform is, I believe, safer, but we all fear its depressing effect on the heart, and it has practically been given up in the best clinics. It also depresses the patient mentally and more or less upsets the stomach.

Nitrous oxide oxygen is ideal. It works better in the old than in the young. It seems to me the older the patient, the better he takes it. It is pleasant to smell and taste. The patient goes under almost instantly and wakes up, wide awake, practically as soon as the mask is removed. While the dressings are being applied the patient will talk intelligently with the operator. The good effect of thus promptly regaining consciousness is wonderful. It makes the patient much brighter and most hopeful. This is of the utmost importance in old people. There is rarely any nausea. The heart's action is not depressed at any time during the anesthesia. The breathing is regular and smooth. The color throughout is a natural pink. If at any time there is the slightest trouble with the anesthesia the mask is raised and the patient regains consciousness at once and can be again put to sleep with only two or three minutes delay.

From nitrous oxide oxygen we have never found the slightest bad effect on the patient either directly or indirectly. It has only one disadvantage, and that is that it requires an expert to administer it properly and safely.

In these cases we usually give, one-half an hour before the operation, a hypo of morphia, grains 1-6. In the operative procedure we infiltrate the tissues, "before the knife," with novocaine 1-8 per cent.

The operative method is most simple and rapid. A small supra-pubic opening is made. Then two fingers of the gloved left hand are inserted into the rectum to lift up the prostate. The forefinger of the right hand is passed into the bladder, ungloved. With the finger

nail the mucous membrane just in front of the prostate is cut, the capsule torn and the gland quickly peeled out of its bed. This is usually done in two or three minutes. The gland is sometimes removed entire and sometimes in pieces. Small retractors are now inserted and the cavity packed and compressed for a few minutes with dry gauze. One or more sponges wet in very hot water are then compressed into the surface to stop oozing. If the bleeding is not thoroughly controlled the surface can be sutured, the wound being enlarged for the purpose. This is rarely necessary.

A tube is now inserted, the bladder wall sewed around it and the wound closed.

The after treatment is carried out with strict attention to detail. The bladder is washed out every four hours for several days, and if the urine is at all bloody an astringent solution, such as alum, is used as needed.

The patient is rubbed frequently, his position changed often and he is given an abundance of water and simple food and kept in a cheerful frame of mind. He can be gotten up in a rolling chair the day after the operation, if desired, though we usually keep him in bed for a few days, using the head rest to prop him up.

In one or two weeks the tube is removed, and the wound heals properly. Irrigation of the bladder, first through the tube and later through the urethra is kept up until the urine is in good shape.

Our results, using these various safeguarding and simple methods, have been most satisfactory. Our patients, however old they may be, have practically not been sick at all, and have healed up perfectly and promptly, with good results.

DISCUSSION.

Dr. Joseph Graham, Durham, N. C.: Mr. Chairman: I congratulate Dr. Leigh on these prostate cases, that they are not sick after operation. I speak from the standpoint of the general practitioner and general surgeon. It is rare that we have a case of hypertrophied prostate brought to us on account of hypertrophied prostate; they come on account of complications, painful urination, with complete retention of urine. We have to safeguard those cases. We cannot do a prostatectomy in the presence of acute retention of urine, and in the majority of the prostate cases that I see it is necessary for us to do a preliminary cysticotomy drainage operation and relieve the acute retention of urine or the cytosis of the bladder, and in all the procedures for safeguarding the prostate cases brought to the general surgeon by the practitioner I want to advocate a preliminary cysticotomy. I always do the suprapubic cysticotomy. It is wonderful how these cases will improve under a cysticotomy, and they can be in much better condition in from one to two weeks than they have been for possibly months beforehand. A later operation and removal of the prostate can then be done.

In regard to which method we use in doing the prostatectomy, I will not attempt to argue. I grant there are cases better done through the perineal, and cases better done through the supra-pubic, but I think that each surgeon should do that operation he can do best.

Dr. K. H. Aynesworth, Waco, Texas: Gentlemen: I enjoyed the doctor's paper very much indeed. I think, as surgeons, we should be aseptic in prostatic operations. As a general surgeon I favor the suprapubic operation over the perineal operation. Further, I want to say that I do not believe the removal of the prostate should be an emergency operation. The patients who come to me are, as a rule, great surgical risks; they have delayed the operation either from their own accord, or the medical adviser told them that the operation is very dangerous and, consequently, they do not want to be operated upon if they can avoid it. As a result, they most frequently come when the catheter can no longer be used; either it cannot be passed or blood clots has filled the bladder so that the urine will not flow. When these patients come, in addition to the natural wear and tear of old age, they are poisoned with urinary retention and local traumatism from repeated attempts to draw the urine and many of them have been tapped above the pubes. It is my rule to convert the operation into one of simple bladder drainage under a local anesthetic; when this simple operative procedure is done the removal of the prostate is done at the most opportune moment. The choice of time is purely elective, whether it be five days or as many months from the time of the bladder drainage. The most important factor to be considered is not one of time but the best possible condition of the patient to withstand the necessary shock of operation and the ability to recover from it. The danger of operation cannot be wholly removed, but it can be very materially lessened by sufficient delay in order to secure the optimum condition of the patient for operation.

I think the time has come when we should quit using the term of "prostatectomy." Surgeons remove in almost all patients only the adenomata within the prostate and not the gland itself. I fully realize that in some types of enlarged prostate the gland itself is hypertrophied with or without adenomatous enlargement and in such patients the gland proper must be removed. In

only this class of patients should the term "prostatectomy" be used.

As to the subject of anesthesia, a gentleman sitting near me says that he knows of four deaths from nitrous oxide which have not been reported; Dr. Bryan knows of two others, and almost every surgeon with a large practice knows of others. Nitrous oxide must carry with it frightful dangers. The time will come when we can simplify matters, but up to the present we have nothing safer than the old-time ether, properly given.

Dr. W. A. Bryan, Nashville, Tenn.: Mr. Chairman: I think it is all right to prepare these cases for operation. I think most of them, as Dr. Leigh and Dr. Graham suggested, will need preparation for the operation, but there is one point that I wish to discuss just a little bit, that is nitrous oxide and infiltration. A great many men are going about saying that nitrous oxide has a mortality of from about one to 280,000 on down to nothing. That is the general understanding. Recently in the Nashville Academy of Medicine, they took up the reports to find out the mortality, and nitrous oxide, I grant you that it smells good, I grant you that it tastes good, I grant you that it even looks good, but they found that there were a large number of deaths reported recently from nitrous oxide—anesthesia. Just what the mortality is, no one knows. Here is another point right in connection with that: That one man is using a specially prepared nitrous anesthesia—Crile. The man who makes Crile's Nitrous Oxide told me he did not know what the nitrous oxide contained besides nitrous oxide, that he had been able to recover some thirty-seven nitrates, and how many more he did not know, and that their nitrous oxide was much purer than the nitrous oxide we are discussing. Now, granting nitrous oxide is safe, for argument's sake, I expect you to believe that nitrous oxide is capable of killing, just like etherization, just like chloroform, just like ethyl chloride, just like any other anesthetic is capable of producing death, nitrous oxide does it. We do not get all the reports. I know one man who lost two cases from nitrous oxide in two weeks, and neither of them has been reported. I think nitrous oxide is a good anesthetic, but I think it has its dangers just as ether has, and just as chloroform has its danger, and I do not think we can recommend it as an absolutely innocent drug.

Another thing: It is necessary to use morphine (which is all right) and it is necessary sometimes to use morphine plus scopolamine, which is all right, and then it is necessary, if you are going to do much surgery, to use infiltration. That is the way Crile does it and when the patient begins to wiggle, Crile gives him a little ether. I think great credit is due to Crile for the work he is doing, but I am not right sure when everybody begins to infiltrate every operation we are not violating one of the fundamental principles of surgical work. Water is all right, but we cannot inject a lot of water into any tissue without getting more or less traumatism of that tissue. If any of you have seen abscess following a hypodermoclysis, I ask you, if you have had it, why was it so bad? Because you scattered that infection from one region to another by water, and the water was infected. If you will always do it in a clean field with clean water—make sure that you never get any infection—that your water is absolutely clean, then it is possible to do this, but even the injection of novocaine, urea quinine, normal salt solution in any large quantity into the tissue is more or less an infecting agent and you must not forget it. If it is infectious then your nitrous oxide might easily outweigh the danger of ether, however pleasant the conversation with the patient immediately after the operation might be. I think that that will give you but little better results than the local anesthetic, with your morphine and scopolamine, and I think you can do it just about as safely and easily. The point I am trying to make, if I did not make it, is that there is a risk with nitrous oxide, though there is not a great deal of risk. It has not killed my patients but the other fellows, and it killed the other fellow's that did not tell about it; so there is a risk about it and we cannot say it is free from danger.

Dr. Leigh closes: Mr. Chairman, with your permission I would like to ask Dr. Bryan some questions.

Do you use nitrous oxide?

Dr. Bryan: I do.

Dr. Leigh: Have you employed it in many cases?

Dr. Bryan: I have not.

Dr. Leigh: Have you an expert?

Dr. Bryan: I have.

Dr. Leigh: Are the patients ever cyanosed?

Dr. Bryan: Sometimes.

Dr. Leigh: That is the key-note—cyanosis. It is dangerous. We never allow the slightest cyanosis at any stage of the anesthesia. We have had 2,500 cases of nitrous oxide oxygen anesthesia and not one single death, and not one single bad effect that could be in any way either directly or indirectly traced to the anesthetic. Dr. Crile has had between eight and nine thousand cases and he tells me that he has had not one single fatality. Can you show any such record as that in either ether or chloroform?

Dr. Bryan: Robinson has had 55,000 anesthetics with ether, without a death.

Dr. Leigh: That is on the table. How many deaths do we have from ether? Who knows? Nitrous oxide oxygen is both the safest and most dangerous anesthetic known. With an expert it appears to be absolutely safe. No man can become an expert with nitrous oxide oxygen, which is the most satisfactory but the most difficult form of anesthesia, with less than six months' thorough training. We have had men from all over the country come to our modest clinic and witness the anesthesia. It looks so easy to them that they feel sure they can give it without trouble. Many of them on returning home have tried to use it on long cases and came promptly to grief. It is the coming anesthetic and it is only delayed in the coming until we can get experts to give it. In desperate cases it is life-saving.

We allow no cyanosis, not the slightest, from the beginning to the end. I do not pretend to put myself up against Dr. Crile, but I am frank to say that the cyanosis I see in Dr. Crile's clinic does frighten me. We allow not the slightest cyanosis.

If we find that the patient cannot be put under without cyanosis, we stop. We give it to no negroes, because we cannot watch the color.

In regard to the infiltration method, I have been using it for several years and I have never seen ill effects. I do not use it in the prostate gland. I use it in the skin incision.

SPONTANEOUS RUPTURE LATERAL SINUS WITH GENERAL SEPTICAEMIA IN ULCERATING SINUSITIS.*

By E. H. Cary, M.D.,
Dallas, Texas.

I have been led to report this case because I have not been able to find many cases similar to it in the literature at my disposal. The following was written by an interne in our hospital, The Baptist Memorial Sanitarium, truthfully recording the immediate history as it appeared to her family and the patient. Her physician stated she had been sick several days before the hemorrhage, complaining greatly of pain over the mastoid, with rigors and fever, the fever being up to 104, and after the hemorrhage the pain and fever subsided, according to their observation at the time.

This young lady, age 16, an inmate of an orphanage where she had reasonable care and observation by members of the medical profession, had a discharging ear, with the following points in her history, which may be considered of interest:

Family History: Father died at 36 of pneumonia. Mother at 35 of acute Brights. Three sisters living in good health. One sister died at seven months of so-called "congestion."

Social History: A maiden of 16 years, an inmate of I. O. O. F. orphanage.

Previous History: Had had measles, pertussis and lobular pneumonia. Had measles at two years of age and had as complications and sequelae a discharge of pus and bloody serum from right ear and a diarrhoea with intestinal pains and marked bloating of abdomen. Convalescence was protracted and the ear continued to drain for about sixteen to eighteen months, more or less profusely. At about 5 years of age she contracted whooping-cough and this was followed by lobular pneumonia. Her recovery from this was slow. Bowel condition for past few years has been good, and evacuations fairly regular. Appetite good. Normal weight, 120 pounds; present about 112 pounds.

Present illness began as pain in the right mastoid region three years ago after a period of ten years of slight discharge from ear. The ear has drained continuously since attack of measles and has alternated serum and pus. When the drainage would subside slightly she would have dull, aching pains over the right mastoid region. The ear was treated when the patient was about five or six years old and the discharge modified for a time. About three years ago she began to have severe headaches at intervals and the drainage began to increase. When the drainage decreased the headaches increased and then the drainage broke loose and flooded the ear and the headache was relieved for a few days.

Four days ago (September 3, 1914) there was a rapid and profuse hemorrhage from the right ear. From one and one-half to two teacups of blood was lost, which was dark in color. From this time she began having fever and has progressively grown worse and rapidly become weaker.

These two facts, diminution of pain and fever, immensely relieved the attending physicians and made them feel she would be as well as ever.

Following this, however, she had rigors and sweats with fever, much restlessness; hence their desire for help.

She was brought on the fourth day some sixty miles for an immediate operation, based upon a telephone diagnosis that she in all probability now had a thrombosed sinus. So on September 7 she arrived at the sanitarium at 8 a.m. with a normal temperature; leucocyte count, 16,500; pulse, 78; respiration, 20. Put to bed, with notation on chart: "Complains of pain in head and ear." To operating room at 9:30 a.m., where a radical mastoid plus a sinus exposure, with whatever else needed to meet the condition, was contemplated. The overlying cortex was found extremely thin, and immediately the first strip of it was removed a profuse hemorrhage was started, which was controlled with iodoform gauze packs. Not appreciating at the time the extent of the rupture of the lateral sinus and believing the chance for infection was greater throughout the system with

*Read in Section on Ophthalmology, Rhinology, Otology and Laryngology, Southern Medical Association, Eighth Annual Meeting, Richmond, Va., November 9-12, 1914.

the internal jugular intact, I immediately ligated and excised the internal jugular vein, which was noted at the time collapsed. I believed and remarked this was due to a clot well established in the bulb.

My attention was now directed forward to clean up the superior wall down to middle ear and to work my way backward with an effort to rid the patient of granulation tissue and pus and gain room to attack the lateral sinus with a cleaner field, thereby lessening spread of infection. This was accomplished up to the point of the antrum, when fresh hemorrhage flooded the field, which new packs controlled. Pressure with the forefinger of my left hand on pack made it possible for me to clean all of the antrum and area near posterior wall down to the tip, removing principally old pyogenic membrane, which had filled all of this area, as we have often seen.

The thin cortex immediately over the area where lateral sinus should have been could not be removed on account of ever increasing flow of blood. Hence the wound was packed and patient sent to bed with the hope of attacking the case when a clot might be well formed and thereby delivered the next day in the absence of less bleeding.

Normal saline was started, Murphy method, soon after reaching her room. At 2:30 p.m. there was vomiting green fluid. Temperature, 99.2; pulse, 132; respiration, 18. At 4 p.m., emesis; clear fluid. Temperature, 100.2; pulse, 132; respiration, 18. At 8 p.m., temperature, 100; pulse, 72; respiration, 16. Expelled saline which had accumulated.

There was large amount of flatus and she was suffering intense pain over the abdomen; pulse weak and irregular. At 12 midnight, pulse was varied, but temperature, 100.4; pulse, 96; respiration, 20. Urine voided in good quantities. She now complains of more pain in the back and abdomen. At 12:30 a.m., emesis ℥iii, and has slight chill. So with restlessness and pain over abdomen, pulse weak, varying in volume and frequency; mentality clear. Eight a.m. next day was reached with temperature, 100; pulse, 72; and respiration, 18. Complaining of pain in abdomen. In a profuse perspiration.

So she went through second day with maximum of temperature, 100; pulse, 76; respiration, 22. Minimum of temperature, 98.6; pulse, 84; respiration, 18; with condition on the whole fairly good. Delayed the secondary operation for the next day in face of abdominal symptoms, which seemed the most serious, with a chart which doesn't seem out of harmony with ever-increasing septic peritonitis with exception of pulse, and where septic stools, nausea and vomiting, pain, tympanitis, facial expression, etc., were all becoming more prominent. Finally the pulse rate was involved at the end of second day, which did not come down, but went up. Ten o'clock in the morning of the third day her ear was dressed, in the face of increasing symptoms of septicaemia. Her ear was found dry and bloodless. There was some necroses with characteristic odor. Operation was planned for early afternoon in spite of symptoms. She had a chill at 1:30 a.m. Repeated emesis, increasing pulse rate. The recorded temperature at 8 a. m., however, being 99.4; pulse, 100; respiration, 22. At 11:15 severe chill for twenty minutes; pulse rate, 160.2; respiration, 24. At 11:45, temperature, 102; pulse, 150.2; respiration, 24. At 12:40, temperature, 100.6; pulse, 135; respiration, 36. Three p.m., temperature, 100; pulse, 120; respiration, 20; at which time she was taken to the operating room with the thought of finishing the operation, and in face of grave prognosis. We had special anaesthetist and exercised due care. The remaining cortex being removed, when within ten minutes from beginning of operation it was noted the girl was dead. After due effort to revive her. Her family permitted a further exploration, which showed an interesting condition, but refused an autopsy.

We noted that what was apparently lymph thrown out to block an opening, was in reality a fringe of the anterior border of sinus wall, and that the anterior wall of sinus was entirely gone far back towards the bulb. There was a small clot in the remaining lateral sinus which was apparently collapsed. The posterior wall of the lateral sinus was to all appearance the anterior wall. The obliteration of lateral sinus acounted for the collapse of the internal jugular vein. This had been ligated and excised two days before.

There was some evidence of commencing meningitis in the dura of the middle fossae. No abscess in the right hemisphere.

CONCLUSION.

1. Neglected purulent middle ear and antrum in the face of months of warning which nature was good enough in this case to give.

2. An ulcerated sinusitis, with rupture most likely, in such an environment, to develop general septicaemia with or without clotting.

3. Death likely to result from embolus and most likely in this case due to release of pres-

sure where cortex was removed, when emboli from the remaining part of the sinus would fall back into the heraphili, thence into the sinus, of other side, on to the heart and likely to the coronary artery, with sudden death.

DISCUSSION.

Dr. J. W. Jervey, Greenville, S. C.—I should like to say that I merely want to draw attention to the difference between scientific and unscientific methods in a matter of this sort, and yet curiously enough by the same old Dame Nature referred to before, the result was recovery, while Dr. Cary's result was not recovery. Scientific methods and the best possible attention gave no results for him.

This was a case that occurred in the practice of a friend of mine, a general practitioner. He was hurriedly called to see a case where there had been a mastoid abscess that was very superficial. It had eaten through the external plate and was appearing on the surface of the skin. He had seen the case and did not know what to do for it and thought he would poultice it and let it get well. But before he could see the case again there was a spontaneous rupture of the lateral sinus. The people in the house were very much alarmed. He was immediately sent for, and when he got there the patient, a young woman, was bleeding frightfully. In recounting the thing to me, he told me that she had bled a quart. When he got there he saw there was only one thing to do, to try to ram something in there to stop the bleeding. He packed as much gauze as he could work in, left it in place for a few days and the patient got well. That is the only case of spontaneous rupture of a lateral sinus I have ever heard of.

Dr. F. P. Calhoun, Atlanta—I am not familiar with the literature on the subject of spontaneous rupture mentioned by Dr. Cary, but it has always been a mystery to me why such things have not occurred before. When an interne at the New York Eye and Ear Infirmy, ten years ago, I had occasion to report 100 cases of sinus thrombosis, and I am sure that a case of rupture has never occurred at that institution, which has probably more cases than any other institution in this country.

Dr. Cary (closing)—I was also at the New York Eye and Ear Infirmary some years ago as an interne, and in my service I was with Dr. John Richards. I wrote him and asked him to look up the literature on this subject. I have had two letters from him since I arrived here. He said he could not find any report of spontaneous rupture of a sinus without there being some diseased or ulcerating condition to cause it. He is not very definite about it, but he says there have been some cases of spontaneous rupture of the sinus under such conditions. I do not doubt it myself. As Dr. Calhoun has just said, with these old troubles extending over years and years, such as you have all had to operate on, old mastoid cases where you find nothing but masses of accumulated stuff, with all the bone eroded, you wonder why in the world something has not happened to cause a rupture. But this is the first case I had ever seen. I never dreamed I had such a thing as extensive as that, and only when the child had died and I was able to see this little fringe closing the lateral sinus, I found that what was the posterior wall was now the anterior wall and it was all gone. And the remarkable thing was that there was such a little clot.

THE RELATION OF PATHOLOGICAL CONDITIONS IN OTORHINOLOGY TO GENERAL MEDICINE AND SURGERY.*

By J. A. Stucky, M.D.,
Lexington, Ky.

The above topic is not the one I gave to the Chairman of this Section when I was asked to prepare and present a paper for this meeting. This topic is chosen because it was impossible, on account of the war in Europe, to prepare an essay and have it up-to-date on "The Present Status of Major Surgery in Otorhinology and its Relation to General Medicine and Surgery." For many reasons I regret the necessity of changing my topic, and must give almost entirely my personal views on the topic chosen.

For some years past I have contended in medical journals and in private discussions that the relationship and dependence of the oto-rhinologist (and vice versa) to the internist, neurologist and general surgeon was not as close and intimate as it should be. Time, experience and closer observation have more deeply confirmed this view. The findings of eminent internists, surgeons, neurologists and pathologists in the last year or two have given new weight and strength to my own conclusions. Never was it truer, than today, that no special branch of medicine can be practiced independently. Every (so-called isolated and

*Read in Section on Ophthalmology, Rhinology, Otology and Laryngology, Southern Medical Association, Eighth Annual Meeting, Richmond, Va., November 9-12, 1914.

special) organ of the body is dependent more or less upon the whole body, with all its organs and apparati. As oto-rhinologists are considered the most exclusive of specialists in medicine and surgery, we have never appreciated this fact as we should, nor do specialists in diseases of other organs appreciate the oto-rhinologist as they should.

Few of us recognize as we should the value of and our dependence upon the bacteriologist, physico-chemist and dietition, as well as upon the internist, neurologist and general surgeon.

To be known as a specialist in the practice of the science and art of medicine should carry with it far more respect and responsibility than it generally does, for it means that besides being a graduate and trained practitioner in the healing art, we are now devoting more time, energy and study to functional and organic diseases of certain special organs of the body, and as a result of this limitation of the field and concentration of our efforts in study and observation, we are expected to have more skill and dexterity and greater accuracy and success than does the one who does not thus limit and concentrate his efforts. Too much of late has been said and published on "needless mutilation," "massacre," and "slaughter" of tissue and organs not only in the field of the oto-rhinologist, but also in that of the abdominal surgeon. Especially has criticism and condemnation been cast upon those surgeons who have vigorously advocated the complete and radical removal of organs whose functions are unknown or are supposed to have an internal secretion.

Such language, to say the least, is to be deprecated, and the wise medical man is careful not to use it, especially where there is a possibility or likelihood of the laity hearing of it. Any medical man who is ultra radical in all his work is as unwise as he is dangerous, so also is the ultra conservative practitioner. The safe and increasingly successful one is he who is conservatively radical. There is a marked difference between conservative radi calism and radical conservatism.

In the growth and devlopment of our profession there may have been short periods of surgical and medical intemperance in the treatment of conditions and diseases requiring use of one or the other methods, but never have we been justified in resorting to language which conveys such impressions as "massacre," "slaughter" and "mutilation." The apology I offer for this digression from the topic of my paper is, that I may the more forcibly emphasize the intimate relation and inter-dependence one upon the other, of all the departments of the science and art of medicine and surgery.

Of late much has been written by such able internists as Billings and Rosenow, and such surgeons as Mayo, Murphy, etc., with reference to oral infectious foci, and there are now many morbid specimens in pathologic exhibits that show heart lesions and diseases of other organs, which collectively and individually tend to prove beyond a doubt that focal infections in the region of the cavities of the ear, nose, throat, mouth, teeth and tonsils may be the primary causes of serious pathological conditions not only in the joints, but in the abdominal viscera and organs of the thoracic cavity.

The importance of focal infections as a point of entrance of bacteria in general is well recognized, but the idea that the focus serves in addition as a place where bacteria can acquire new properties is not generally recognized and needs to be emphasized.

Under artificial tooth crowns and bridges, above and below the roots of dead teeth, there often exists bone cysts or other sources of pus formation. Any condition of the nasal cavities, naso-pharynx, pharynx or the alveolar process (pyorrhea pockets) resulting in purulent or muco-purulent micro-organisms which may find their way into the gastro-intestinal tract through degultition or into the blood by absorption through lymph channels almost invariably results in indicanurea. I have had a case of Ludwig's angina in an adult which

recovered and one of edema of the glottis in an infant which was fatal, which directly or indirectly could be accountable for the existing auto-toxemia, septicemia and pyemia. With the aids of the Roentgen ray, electric transillumination lamp and other methods of determining actual conditions, assisted by the physico-chemist and bacteriologist, we should be able to report back to the internist, neurologist or surgeon who refers the case to us, complete and satisfactorily whether the cause of existing symptoms could positively or probably exist in that portion of the body to the diseases of which we give special attention.

It is well known that retention of secretions in nasal accessory sinuses, or any partially closed cavities, tends to become purulent, and cause systemic infection by being absorbed. Rosenow has proven that retention of bacteria may acquire new and deadly properties, as in sphenoidal, frontal and maxillary sinuses. Brem, in examining 300 bodies in the Colon Hospital, who died of various diseases of non-pneumococcic origin, found that in 14 per cent pneumococci were present, and in 70 per cent of the cases dead from pneumococci, this sheds new light and gives increased evidence upon the sinister possibilities of nasal accessory sinus disease as a factor in infections of serious nature.

One important fact, often overlooked by careful and capable medical scientists is that the treatment of pathological conditions in otorhinology differs from that of any other portion of the body, in that these cavities, with their accessories, require constant ventilation as well as constant drainage, or the existing pathological conditions cannot be permanently eradicated.

A suppurative area in the field of oto-rhinology demands the same careful and thorough surgical treatment as it does anywhere else in the body, by a large exit by incision, a thorough curettage if necessary, and perfect drainage maintained until all suppuration ceases and healing takes place. This can be done, but is more difficult because while we are maintaining drainage, we must not for any length of time interfere with ventilation. The medical profession as a whole is rapidly learning that the mastoid process and cells are to the cranial cavity what the appendix is to the abdominal cavity, and by early treatment of acute infection of the middle ear, by a free myringotomy, mastoid infection, suppuration and otitic meningitis is greatly lessened. The recognition of this by the internist and pediatrist, and the prompt relief given to the sufferer with earache, is rapidly reducing the number of cases requiring the mastoid operation.

The relation of pathological conditions in otology to general medicine is emphasized by the number of cases seen by internist, complaining of nothing but a general malaise, running a temperature curve not unlike that of typhoid fever, but having none of the pathognomonic symptoms or indications of the disease, there are none of the classical symptoms of mastoid suppuration, there is little if any change in the drum membrane, no pain or swelling back of the ear, the case runs a course of ten days or more, when suddenly the temperature shows a decided septic curve, the blood count shows not only an increase in leucocytes, but in polymorphonuclear percentage, later on classical symptoms of mastoid suppuration, meningeal irritation or sinus thrombosis appear. The otologist is called, the location of the septic foci determined and the operation reveals a thick cortex over the mastoid, and beneath which is an amazing destruction of bone, extending through the inner table of the skull, the sigmoid sinus uncovered and exposed a large extra-dural abscess is revealed; all of this without any symptoms of ear disease. In the beginning deep pressure and percussion over the mastoid process, with transillumination of radiogram with daily differential blood count would have given evidence of the disease, and early surgical treatment brought speedy relief. This picture is one often seen by the otologist, and is not to be classed with the rare and atypical cases.

The internist or general practitioner who allows an appendix infection to pursue its course until rupture occurs, and the abdominal cavity becomes filled with septic material, is greatly chagrined over his failure to detect what was taking place in the abdomen, and humiliated by the delay and danger to his patient, in not urging surgical treatment earlier.

When the average general practitioner can as quickly and accurately diagnose acute middle ear, and mastoid infection, as he can those of the abdomen, and urges surgical help as quickly in one as the other, we will have fewer cases of permanently impaired hearing, and meningeal and lateral sinus infection.

Cases of chronic catarrhal otitis media, tinnitus, ankylosis of the ossicular chain and otosclerosis, cases that come first to the family physician, can only be successfully dealt with by the combined efforts of the internist and otologist, assisted by the physiological chemist and dietitian. In this class of cases, after the local obstruction and destructive causes are removed, faulty metabolism, as result of improper food, insufficient elimination and autointoxication, whether from intestinal stasis or what not, must be removed. A few days on a restricted diet, an occasional analysis of the feces and urine, is of little service to the doctor and less to the patient.

In certain surgical cases, in order to obtain reliable aid from blood examinations daily or twice daily, differential blood counts must be accurately made, so in these cases in oto-rhinology which are due to or maintained by faulty metabolism, frequent laboratory examinations of both urine and feces must be made before we can prescribe a diet or drugs that will aid in arresting or curing the disease.

It is just here that oto-rhinologists, internists and neurologists often commit a grievous error by not going fully into the details of each case and assiduously following it up. It is not enough to push the case aside with the statement that the cause of the trouble is faulty metabolism (whatever that may be) and do nothing but give placebos, and promise nothing but to do the best you can, and urge the patient to be persistent and optimistic. I insist that it is a reproach to our science and art to admit that we do not know and cannot find the cause of any pathological condition that the human body has acquired, and I believe we will find and remove it when all of the special departments of medicine and surgery act in harmony and with determination. Faulty metabolism with the persistent co-operation of the patient can be made faultless.

We must remember that perfect metabolism requires proper functioning of every organ, and it is just as essential that the elimination of waste matter be properly accomplished as it is for the anabolic process to take place. Perfect function requires that every bodily organ be in a sound condition, otherwise imperfect combustion and retention of nitrogenized material is dangerous to that particular part of the body on which it exerts its influence. The blood, being the primary factor in the distribution of nutriment and oxygen to the tissues, is also the carrying agent of toxic material, and any new eliminated waste product will thus find its way to some particular organ of the body which will then manifest marked symptoms.

Cases are often referred to oto-rhinologists by internists, neurologists and surgeons, and we are expected to restore lost organs, and tissues and to rejuvenate those which have not undergone complete degenerative metamorphosis—all, acting together, aided by the physico-chemist and dietitian, may yet do more than arrest the progress or ameliorate the condition caused by a long suppurating ulceration, from calcification of the drum membrane and ankylosis of the ossicles in inflammatory conditions involving the naso-pharynx and extending into the eustachian tubes causing impairment of drainage and ventilation. In chronic pharyngitis of lithemic or gouty origin, which has brought about insiduous changes along the eustachian tube, causing irregularities and impediments to flow of air and the

blood and lymph circulation, what can be done?

For these conditions much can be done, but the oto-rhinologist must either do the work of several departments of our science and art or have the hearty and interested co-operation of them all. Inflammation first causes congestion and increase of the connective tissue elements; then follows contraction, anemia, faulty nutrition, atrophy and degeneration.

Speedily remove the cause of the inflammation and there will be no sequelae. This can be done by the united help of the general and special medical men, aided by an educated and co-operative laity. The time limit of this paper forbids my discussing in detail any of the graver pathological conditions in oto-rhinology and their relation to general medicine and surgery.

In conclusion, I have seen cases of knee joint suppuration and other metastatic conditions resulting from an unrecognized suppuration in the ear, and nasal accessory sinuses. Also cases of pronounced mental depression and melancholia from involvement of the frontal lobe (the silent area) of the brain, due to infection passing through the cribriform plate and resulting in a pachymeningitis. In this age and this degree of perfection of the science and art of medicine the relation of one branch to the other, of one specialty to the whole, is one and inseparable. In every department we have received much and advanced far. To every one let us give as we have received and help the other to advance as far or farther than have we.

DISCUSSION.

Dr. H. H. Martin, Savannah—I have listened with a great deal of pleasure to this paper. It seems to me the keynote of Dr. Stucky's paper is the relation between the so-called specialist and the general practitioner. I think we are all willing to admit that this, relation should be much more intimate and much more strictly professional than it has been in the past. We are all familiar with the picture of the crying child with the earache and a high temperature. The specialist is called in, but unless he makes a very careful examination he will not find the cause of the condition. We are also familiar with a condition of rheumatic joints and apparently no tonsil inflammation. But on close examination we sometimes find a focal infection. There can be no question that a great many of the ills of children can be traced directly to focal infection in the throat or naso-pharynx. My own experience has been that if a complete evacuation of the bowels does not relieve a child who is ill from no apparent cause, if you look in the throat you will find it. We should be radically conservative and conservatively radical. There can be no question that some of us in our enthusiasm do become a little bit too radical. But I contend that it is better to remove a healthy tonsil than to leave a diseased one. I think we will all admit that that horrible disease, cerebro-spinal meningitis, enters through the naso-pharynx. The fundamental principle of surgery is drainage, and when you have focal infections or retained pus, get rid of it.

The doctor spoke of the classical mastoid. There is no classical mastoid picture. You can only make a diagnosis in early mastoiditis by observing many things. I do not think it is possible to draw a classical picture until the case has advanced to extensive suppuration. In the early stages you can expect high temperature, but you do not always get it. I have seen severe cases with low temperature. You have got to examine the skin, you have got to examine the periosteum over the mastoid, you have got to let your finger go over the tip of the mastoid, you have got to make a blood count, and many things. Do not expect a classical picture. Neither do you get a classical picture in sinus infections. I think the greatest puzzle that I find in my daily practice is to try to find out whether or not patients have diseased sinuses. Of course, if a patient has got pus discharging from a sinus your office boy can make your diagnois. But there are many conditions of the nasal accessory sinuses and of the vault of the pharynx that require the most careful examination, and you must not be content to say, "I have found a disease here;" you must be able in most cases to say to yourself when you get through, "I have found that there is no disease."

Dr. J. W. Jervey, Greenville, S. C.—Just one brief word, and that is that I think Dr. Stucky has presented a theme here which, while most of us who have heard it are more or less familiar with the actual conditions and occurrences, yet it seems to me that the important thing for us to do is to preach this gospel to the general practitioner. He is the man that has got to find out about it, got to learn to refer his cases to us when it is required. I know there are many cases, particularly in the country districts and the small town, where the men have not all the facilities that the city man has, of death supposedly due to endocarditis, nephritis, typhoid fever and even malaria where the original causation of the symptoms would be found if looked for in the head, appendix, liver or somewhere else. It seems to me that the important lesson to be drawn is that the general practitioner as a class must be shown the importance of looking for these focal infections.

Dr. J. B. Greene, Asheville, N. C.—I want to emphasize just one thing, and that is the importance of the teeth as a point of focal infection. In cases

where the teeth have been worked and the nerve has been killed, it is easy to overlook an infection because the tooth is no longer sensitive. In such a case the X-ray is the only means of determining the existence of the trouble. The streptococcus viridens affects the heart, and the X-ray is the only way in which you can determine that infection of the teeth. There are also, of course, other infected conditions of the teeth and gums which may be points of focal infection.

Dr. Stucky (closing)—Dr. Martin certainly misunderstood me. My paper distinctly said, "the so-called classical symptoms of mastoiditis." I tried to put emphasis on the "socalled." I fully agree with him about that.

Dr. Jervey has emphasized the point that I tried hardest to emphasize, and after my paper had been prepared I asked for the privilege of reading it before a joint session. I know otorhinologists do not need to hear such a paper, but the general practitioner does, especially the one who lives in the country districts and the small towns. You would be amazed at the number of cases that I see with mastoid and frontal sinus and alveolar trouble that could have been prevented simply because the general practitioner who got his start years ago, like some of us did, overlooked the local foci of infection and who neglected to use preventive measures early.

I am glad Dr. Greene called attention to the alveolar process. Dr. Billings called my attention to that several years ago, and up to that time I had not been noticing it. But now I have a radiograph made of every one of my cases where I suspect sinus trouble; indeed, it has almost become a routine to have a radiogram made.

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JOURNAL OF THE
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Incorporating Gulf States Journal of Medicine and Surgery and Mobile Medical and Surgical Journal.

Published monthly at Nashville and Mobile. Price, $3.00 per year; 25 cents per single number.
Address Southern Medical Journal, Suite 905 Van Antwerp Bldg., Mobile, Ala., U. S. A.
Entered as Second Class Matter July 8, 1908, at the Postoffice, Nashville, Tenn.

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Next Meeting, Dallas, Texas, Nov. 8, 9, 10, 11, 1915

EDITORIAL DEPARTMENT

SURGEON-GENERAL RUPERT BLUE.

The leading article in this number of the JOURNAL is entitled, "Anti-Plague Measures—With Special Reference to the New Orleans Campaign." After a very condensed reference to the dreadful epidemics of plague in the past and to the now universally accepted doctrine that the rat is the carrier of the flea which is the host of the germ of plague and whose bite infects the human being, he speaks especially of the appearance of the disease in 1914, and in a few words he records an historical fact without a parallel, namely, that the bubonic plague was recorded as present in New Orleans on June 27 and that the last case was recorded Sept. 30, ninety-five days from the first announcement.

Think of it! The presence of the most dreaded of all epidemic diseases in a semi-tropical city, where there were numbers of markets and similar places in an unsanitary condition and swarming with rats, was acknowledged on a certain day in the hot summer time. Ninety-five days from that date it had been eliminated, and with fewer deaths than might occur in an ordinary epidemic of influenza. Now, such victories do not win themselves. Such a triumph must acknowledge a leader, a directing mind, no matter how efficient his subordinates may be. Who directed this fight? Who would have been held responsible if it had failed? Who was the official head? The article in question says:

"Request was made by the authorities of New Orleans, and concurred in by the state health authorities of Louisiana, that the Public Health Service assume charge of eradicative measures, and this course was authorized by the Secretary of the Treasury on July 3."

This is all Dr. Blue says about the campaign at New Orleans so far as he was concerned, yet the world knows that it was principally the efficient work of his subordinates, acting

under his directions, that achieved the victory. True he was magnificently supported by the intelligent efforts of the city health authorities of New Orleans and the Louisiana State Board of Health, but without the work done by and the intelligent assistance afforded Dr Blue by Assistant Surgeon-General Rucker, Surgeon Creel and others who acted under his direction, there would be a very different story to tell today. Under Dr. Blue the Public Health Service has made wonderful strides in increasing its efficiency and extending its influence. In almost every port of the civilized world it has an eye to discover and a voice to warn this country of possible dangers of invasion by epidemic diseases. In all our own seaports it has shown itself ready and able to assist the local authorities in combatting such diseases when they chance to get a foothold. Indeed Surgeon-General Blue has made a record for efficiency that delights his friends and which has very greatly increased the scope and usefulness of our government's Bureau of Public Heath.

THE CHANGES AT JOHNS HOPKINS.

Foremost among recent events in medical history must be ranked the changes in the organization of the medical department of Johns Hopkins University incident to the munificent gift of $1,400,000 from the General Education Board, establishing the William H. Welch Endowment Fund for Clinical Teaching and Research. These changes are so extensive and afford such a splendid opportunity for teaching, study and research on the part of the "full time" staff, unhampered by pecuniary consideration or the demands of private practice, that the ultimate results should be of immense advantage to the entire profession. The distinguished gentlemen who have thus relinquished remunerative practice to devote themselves to the care of hospital patients, to teaching and to research, can train up around them a select body of young men who will carry the methods and the enthusiasm of their teachers to other schools where their services will be imperatively required. Although the changes are extensive, yet all who were connected with Hopkins last year will still retain important connections with the school. Briefly stated, the changes are as follows: Three departments, Medicine, Surgery and Pediatrics, will each be served by two faculties; a "University Staff," composed of professors, associate professors, assistants, etc.,-who do no private practice, but devote all of their time to the service of the university, and a "Clinical Staff" similarly organized, but composed of professors, associates and assistants, who also retain their private practice. The term "Clinical" is interpolated simply to mark the distinction between those teachers in the university who do private practice and those whose whole time is devoted to the university. This distinction does not detract from the importance or the responsibility of any one. Drs. Barker, Thayer, Finney and others, who are members of the Clinical Staff, continue to hold important teaching positions in the university as professors in the clinical subjects and as visiting physicians at the hospital. The status of Drs. Kelly, Young, Williams and some others remains unchanged. Members of the "University Staff" act as the heads of the departments and exercise supervision and control over them.

Only the heads of departments have seats and vote in the Advisory Board of the Medical Faculty of the university, and this has necessitated the withdrawal of Drs. Barker, Thayer and Finney from that board, without, however, detracting otherwise from the importance and responsibility of their positions; they retain their seats and their votes at the Medical Board of the Johns Hopkins Hospital.

Of the "University Staff" the heads of departments are as follows: Dr. Janeway is professor of Medicine and Physician-in-Chief to the hospital, and Dr. Halsted is Professor of Surgery and Surgeon-in-Chief to the hospital. Pediatrics is arranged entirely upon a full time

basis with Dr. John Howland at its head, but has two members of the Clinical Staff on its service. Drs. Barker and Thayer are Professors of Clinical Medicine and Visiting Physicians to the hospital. Dr. Finney is Professor of Clinical Surgery and Visiting Surgeon at the hospital.

Funds are available for the fullest possible utilization of clinical material and of the several clinical laboratories. Members of the "University Staff" may see whatever private patients they desire either within or outside the hospital, but with the understanding that they will receive no pecuniary benefit, the fees going to the university treasury.

Members of the "Clinical Staff," however, engage in private practice, the professors limiting this almost wholly to consulting work and to the care of patients in the private wards, and the only restriction upon them is that their fees from private patients in the hospital are subject to supervision.

Such an improvement in the facilities for educating medical students cannot fail to incite emulation. Other schools besides Johns Hopkins can, it is believed, soon command sufficient funds to enable them to secure competent teachers who will devote all of their time and ability to the care of the hospital patients entrusted to them, to the instruction of the students who depend upon their teachings, and to the investigations, experiments and study included in the term "research." Though perhaps such teachers may be fewer in number than at Hopkins, the principle can be the same.

For quite awhile "all-time" teachers have been considered indispensable in the so-called laboratory branches, and recently the announcements of several schools have noted the employment of professors in some of the clinical branches who devote their entire time to the work. Though these instances cannot compare with the extraordinary development at Johns Hopkins, yet they are significant of a rising tide in medical education that, ere long, will demand of every standard medical school a clinical staff of the two types above described; besides, the "part-time" professors, there must also be "whole-time" men whose experience and success have demonstrated their ability and who devote all their time and effort to the teaching of medicine, to the healing of the patients in the college hospital, and to delving still deeper into the hidden mysteries of physiology, pathology and therapeutics.

The plan of the work at Hopkins is lofty and seems worthy of all praise, but surely that university is not the only one in the South that can successfully follow the road so plainly marked out by the requirements of modern medicine. It must be remembered, of course, that the whole procedure is an entirely new departure in clinical education and that some time must elapse before we shall know of its success or of its failure. It is entirely possible that various modifications of the redistribution of functions made at the start may become necessary in order to reach the best kind of organization. In any case, we are confronted with a profoundly interesting experiment in the reform of clinical teaching and research, and the results of the application of the new principle will be watched with expectancy by all friends of higher medical education.

MISSING.

In the atrocious carnival of murder now devastating the fairest regions of Europe the final account of the work of each day is reckoned and flashed to mourning nations as so many killed, so many wounded, so many missing.

Whenever the toll of the missing counts heavily the hearts of thousands beat low with fear. Are they languishing in military prison-camps, or lying in unnoted torture on some abandoned battlefield, or dead and lost in tangled copse or rushing river! Who can tell? This alone we do know; that if nearly two thousand Englishmen or Frenchmen or Ger-

mans were reported missing every day for weeks and months *in ways that were avoidable,* those nations would thrill with alarm and steps would be taken to check or diminish the loss.

Fortunate America is not at war. No hostile ships attack our seacoast towns, no aeroplanes drop bombs on helpless cities. The business of eating, drinking, multiplying and dollar-getting proceeds undisturbed, and only an occasional funeral bell reminds us that all must die. All must die, and to unavoidable deaths it is right to be reconciled. But deaths from avoidable causes are unnecessary deaths and some one somewhere is to blame that they are allowed.

Yet here, in fortunate America, every day of the year sees an army of men, women and children die unnecessary deaths.

Every twenty-four hours fifteen hundred (1,500) fellow-citizens die from avoidable diseases. Every day, without intermission, the year round, Sundays and week days, this army of 1,500 souls is reported missing from the ways that know them, and the causes of their loss are avoidable, and capable of being eliminated or controlled. And yet our representatives and theirs, the men they and we sent to Washington, turn deaf ears to our pleading that the Government reach out a strong arm to the rescue. True the Agricultural Department conserves the crops that feed us. True the Public Health Service, though fettered to an alien department, does noble service in prominent places. But we, the people, live everywhere, in hamlets and villages, on farms, in factories, where the service cannot afford to be on guard. We are fed on doctored corn, poisoned meats, rotten goods in pails and cans. We are lied to and stolen from. Epidemics slay our children. State and municipal governments are governed by fear of the voters and give us no relief. We know what we want. We have proclaimed it aloud, in numbers and singly. *Give us a Department of Public Health and Sanitation.* Appropriate enough of our national money, ours, mark you, to equip and run it. Place some one of our splendid sanitarians in charge and tell him to do it, and it will be done, and that speedily.

HELP BELGIAN DOCTORS!

In the prostrate land of Belgium there are four thousand doctors and their families. Of these, fifteen hundred are in need of food as well as the other necessities of life. Even the few who may have a little money are unable to purchase food and they must go hungry, perhaps starve. They cannot minister professionally to the wants of their suffering fellow citizens, for all medicines, instruments, bandages and the like have been taken from them. Their wonderful courage counts for nothing. To those of us who can visualize this condition every pleasant meal that we might enjoy is embittered by the thought of their sufferings.

When we wrap ourselves against the inclemencies of winter a shiver of cold pierces our warmest garments as we think of their destitution, in a frozen land from which hostile hands have snatched all save the summer clothing they wore when the catastrophe burst upon them like a bolt from a clear sky; and the generous heart of many a Southern doctor has longed for an opportunity to help his prostrate brethren of the spatula and scalpel.

Well, an opportunity is presented. An organiaztion known as the "American Committee for the Aid of Belgian Physicians," headed by Dr. Victor C. Vaughan, President of the American Medical Association, stands ready to act as a medium for the transmission of contributions. Only money is required, though supplies will be received if wrapped in secure packages, each package being surrounded with a broad yellow band. All money contributed will be placed in the hands of sub-committees, who will convert the funds into proper supplies, including food, clothing, surgical dressings, instrument and necessary drugs, which will be promptly conveyed, through the American committee, to the Belgian physicians and their families. Personal checks for

any amount will be accepted. They should be made payable to Frank F. Simpson, Treasurer, Pittsburg, Pa.

Though we think our present conditions are hard, yet they are like Paradise compared with the environments of these, our brothers, in Belgium. Let us respond promptly and liberally.

A NEW ANTIDOTE FOR CORROSIVE SUBLIMATE POISONING.

We have received from the American Pharmaceutical Association, of Detroit, a "Reprint" with the above title, the author being "William A. Hull, Ph.B., 200 Griswold Street, Detroit, Mich."

The author, seeking for a chemical antidote for corrosive sublimate poisoning, studied the reactions of the drug with several other chemicals and compounds. Without repeating his statement of the various reactions it may be stated that his conclusions are as follows: Remove the stomach contents as thoroughly as possible. Give the whites of eggs and remove them, either by vomiting or by the pump. Then for every two (2) grains of bichloride swallowed administer the following prescription:

Potassium Iodide .....grs. VII ss (7½)
Quinine Hydrochlorate .....grs. IV
Water, pure .....oz. IV
M. Ft. Sol. Sig. For one dose.

"It forms a precipitate with the mercuric chloride insoluble in dilute acids or alkali carbonates. This also should be removed and the stomach washed clean.

Though the above solution could be promptly made in any drug store, yet as minutes are precious in such cases it would be better for every drug store to have on its reagent shelves and every doctor in his laboratory a quantity of this reagent amounting to at least a pint, always made up and ready for instant use.

Meanwhile the telephone could bear the order for a heaping tablespoonful of mustard to be given in a glass of lukewarm water, and emesis provoked, during the time occupied in journeying from the office to the patient.

AN AMERICAN SUBSTITUTE FOR THYMOL.

Reprint No. 224, from the Public Health Reports, issued by the Government Printing Office, October 2, 1914, presents for consideration by the medical profession some data on the use of oil of chenopodium, or wormseed oil, as a substitute for thymol in the treatment of hookworm.

Certain investigators quoted in the Report give the relative values of drugs generally used for the purpose as compared with the value of oil of chenopodium, as follows: "Giving eucalyptus oil a coefficient of 38, naphthol 68, and thymol 83, oil of chenopodium surpassed them all with a coefficient of 91." Their conclusions were based upon the treatment of 1,457 cases of hookworm in eight months. Oil of chenopodium, like the other vermifuges, is capable of doing harm if improperly used. Its toxic effect is in the nature of a paralyzing influence on the central nervous system, but only when the doses are excessive are any serious results noted. Though in one shape or another chenopodium is in common use for lumbricoid, or round worms, yet only 12 cases of poisoning by the oil have been recorded in fifty years.

Chenopodium grows as a common weed all over the Southern States, where it is generally known by the name, Jerusalem oak and wormseed. The seed are ripe in October and have a bitter, turpentine-like taste, which pervades the whole plant. The plant flowers in dense, leafy spikes, the seeds black, shiny, about the size of a pin's head.

A domestic remedy for round worms is made by mixing a liberal quantity of the ripe seeds with molasses candy while it is still hot and fluid. This is readily taken by children, and if eaten during the day and followed at night with a liberal dose of castor oil, it is usually effectual.

In treating hookworm the usual preparatory treatment is ordered. Then 16 drops of 01. chenopodii, with sugar, are given every two hours for three doses, to adults, followed

two hours later by a tablespoonful of castor oil. The investigators gave "a teaspoonful of chloroform" with the castor oil. Though this amount of choloroform is prescribed sometimes for tapeworm, most physicians would prefer to give a smaller dose with such a paralyzant as oil of chenopodium already in the system.

To quote further from the Report: "Gockel gives the single dose as 8 to 16 drops, according to age—6 to 8 years, 8 drops; 9 to 10 years, 10 drops; 11 to 16 years, 12 drops; over 16 years, 12 to 16 drops. Should untoward symptoms arise, particularly inordinate sleepiness or depression, the chenopodium should be withdrawn at once, active purgation induced, and stimulation begun with hot coffee by the mouth or by the rectum."

The Report recommends further that "for use in the South, where the plant grows as a weed, the possible efficacy of a decoction, made by boiling one ounce of the fresh plant in a pint of milk or water, administered in wineglassful doses, should be remembered and tried under careful supervision.

It is more than probable that the substitution of the oil of chenopodium for thymol in the treatment of uncinariasis will prove to be another instance of being obliged to look at home for the agencies for which we have been paying extravagant prices to foreign producers.

A LITTLE LEARNING IS A DANGEROUS THING.

A recent copy of a newspaper speaking of the remedy for bichloride of mercury poisoning proposed by Dr. Thomas A. Carter, of Chicago, after mentioning optimistically its success, concludes as follows: "Dr. Carter is now preparing a complete history of the seventeen cases he has treated for presentation to the Chicago Medical Society, before which he has made public his simple antidote—sodium phosphate—(five grains for each grain of the bichloride taken) and sodium acetate, both drugs in every-day use."

Now, sodium phosphate is *not* a remedy for bichloride poisoning and is *not* the drug specified by Dr. Carter. The proper chemical is sodium *phosphite*, a substance which is *not* in every-day use and one which it is not always easy to procure in a pure, fresh condition. The results of such a misstatement may well be lamentable. Exchanging newspapers will repeat and spread the error. Unfortunate victims will hasten to take some one of the numerous proprietary compounds labeled phosphate of soda, the precious moments during which the stomach might be emptied and washed out by repeated vomiting or otherwise will be wasted, and human lives sacrificed to "a little learning." In dealing with such a serious matter the editor should have consulted some competent physician before thus carelessly tampering with information that might mean life or death to some confiding reader.

NINETY-THREE TYPHOID CASES FROM ONE DISH OF SPAGHETTI.

The *Vicksburg Herald* of November 22, 1914, publishes an item recounting a truly remarkable incident.

Ninety-three cases of typhoid fever were traced to a large pan of spaghetti prepared by a woman who was unconsciously a typhoid carrier. The dish was served at a church supper, and only those who partook of it developed the disease. Laboratory experiments showed that the degree of heat to which the dish had been exposed in cooking only served to develop the bacteria with which it had previously been infected. The period of personal incubation was shortened. The first case developed in three days, but the majority in six days.

The incident shows how impossible it is always to guard against the innocent typhoid carrier. The only real safeguard against typhoid seems to be anti-typhoid vaccination.

THE MEMPHIS MEDICAL MONTHLY.

The *Memphis Medical Monthly*, of November, 1914, announces its renunciation of unethical advertisements and enlists for the war against quackery and dishonest formulas in the advertising pages of medical journals. We have often wondered why a publication of such undoubted merit, and sustained by the brains and money of so many of the leading physicians of the South, should continue to publish advertisements condemned as fraudulent or unethical by the A. M. A. Council. The November issue explains the matter.

It seems that when Dr. J. E. Andrews assumed charge of the journal a part of the consideration was in deferred payments, and until these were met he "did not think it was right or proper to change the policies of the *Monthly* so radically." Conditions are now such that he feels it his duty to "make such changes as are deemed to be in the best interest of the medical profession."

This is a brave and noble stand, and we speak from hard experience when we say that it entails such a loss of revenue that unless the medical profession, whom he is striving to serve, rallies to his support, the income from the *Monthly* will probably not meet its expenses.

Dr. Andrews has, by taking this bold stand, shown that he is one of the conscientious few who esteem honor above profit. He was not obliged to do it. His subscribers did not demand it. His contributors were regularly providing him with valuable material, regardless of the fact that they served as bait for the attention of medical readers to proprietaries that were in reality offering direct treatment to the public. But he saw how the profession was being unconsciously seduced into a dependence on worthless preparations for their prescriptions, to the peril of their patients and the detriment of their reputations.

He saw that the future of medical usefulness was in danger, and, regardless of the yearly loss that must amount to from four to five thousand dollars, he announced that henceforth "no advertising will be accepted that is not approved by the Council on Pharmacy of the American Medical Association," meaning, of course, that the advertisement of no medicine would be accepted unless it had been placed upon the list of New and Non-Official Remedies.

Dr. Andrews deserves the support of every doctor who loves his profession and wishes well for its future. His subscribers owe him an expression of their approval and should be prompt in renewing their subscriptions and applauding his courage. His contributors should continue their help in making the *Monthly* what it long has been, one of the best local medical monthly publications, and every doctor would but serve himself, his patients and his profession by calling the attention of the editors of such other medical journals as he patronizes to the stand taken by the *Memphis Medical Monthly*, and declaring that henceforward he would write for and subscribe for only those medical publications that take the same stand.

THE RURAL SCHOOL AND HOOKWORM DISEASE.

Dr. John A. Ferrell, formerly one of the North Carolina representatives of the Hookworm Commission, but now Assistant Director General of the International Health Commission at Washington, D. C., has distributed a pamphlet, prepared under his direction, entitled: ,'The Rural School and Hookworm Disease." In the first chapter, page 9, appears a sentence which in few words correctly estimates the character of the disease under consideration. It says: "Hookworm disease is one of the most prevalent, most insidiously harmful, and most completely preventable diseases known to man." A graphic description is given of the way in which an uninfected community with a model schoolhouse but which has no privy, may become widely infected through the agency of one or

two children visiting a distant family whose grounds are polluted. Returning home infected, the children soon distribute infection around the schoolhouse, whence it is promptly conveyed by the pupils to their homes. Soon ground itch is seen, pallor and increasing torpor become evident, and all the phenomena of uncinariasis characterize the whole community.

Then he pronounces another opinion: "It is through the rural school, whence the infection has come, that the remedy must also come." He considers a large part of the money spent on rural schools simply wasted, "as a bloodless brain cannot properly respond to intellectual stimuli." Examination of half a million school children in eleven Southern States during the last five years has shown forty per cent of them to be infected. The legitimate inference is that twice as many persons who are not attending school, such as domestics, factory hands, etc., are also robbed of a fourth of their efficiency by the anemia resulting from infection. The remedy for this state of affairs is so simple, so readily accomplished, and adds so much to the comfort and self-respect of all concerned that it is not unreasonable to hope that another decade will see the complete abolition of this incubus upon Southern welfare. As Dr. Ferrell says: "Once schools and dwellings in country districts are provided with sanitary privies of one type or another, there will be little danger from hookworm."

The pamphlet is illustrated with several pictures of youths before taking the treatment and after it has cured them. They speak louder than could any written description. Other photogravures show dispensaries in operation, sanitary privies, etc. Space is lacking for further notice of this excellent work. It is one of the steps towards an ultimate object, namely, the institution of sanitary arrangements for every country home in the states operated in by the Hookworm Commission.

Altogether the brochure is a thorough and successful effort to place within reach of all such a practical exposition of the interrelation of rural schools and the spread of hookworm disease that, for the purpose specified, there is nothing more to be said. Dr. Ferrell has demonstrated his ability to perform the difficult feat of expressing scientific truths in popular language and at the same time making his subject one of absorbing interest to his readers. It is to such men we look for final emancipation from uncinariasis.

A SPLENDID AUTOBIOGRAPHY.

Dr. John Allen Wyeth has written a most delightful and entertaining autobiography entitled, "With Sabre and Scalpel: the Autobiography of a Soldier and Surgeon." It is published by Harper & Bros., New York and London.

A review of the book can only adequately be made by recounting some of its many incidents. It tells how, when a small lad sixteen years old he was at his home in Guntersville, Ala., when the war between the states began. His father joined the Confederate army early, and "Johnny," as he was affectionately known to his friends and comrades, was anxious to go along with him. His parents persuaded him to stay at home, until one day a Yankee gunboat came up the river to Guntersville, and young Wyeth, with other boys and some old men, armed with rifles, shotguns and whatever weapons they could find, ambushed the gunboat and fired on it. He tells how the Yankees, taken completely by surprise, scuttled below for shelter, but they soon recovered their wits and a few Parrot shells sent the "Southern Homeguards" fleeing into the wood for safety. His account of the damage they thought the Yankees must have sustained is very amusing. Their estimate was that half of them were killed, but he afterwards learned not one was even seriously wounded, the range of their old weapons being too short.

However, there was a spy in the neighborhood and it was soon rumored that the names

of every one of those who had been with the party were known to the Yankees and they would be shot as guerillas if caught. So John Wyeth went to the army.

He first joined "Morgan's Men," and was with them in their most daring and successful raid through Kentucky and Tennessee. Afterwards he was with Forrest and with Wheeler. He was captured after the battle of Chickamauga and sent to Fort Morton. His clothing was wet when he was captured, and he had no other. The clothes he wore were too thin for that northern climate and he had a severe chill the first night in prison. He was sent to the hospital, where he spent several months in a helpless condition. He was so seriously invalided that near the close of the war he was sent, with a train load of other hopeless cases, to be exchanged at Washington. After the war Dr. Wyeth graduated in medicine from the University Medical School at Louisville. He returned to Guntersville to practice, but soon became convinced that he was not sufficiently prepared for the work, so he took down his sign and went to Arkansas as superintendent of a lumber camp. Later he piloted a steamboat on White River, quarried and shipped stone to build the penitentiary at Little Rock and undertook large contracting.

In 1872 he went to New York City to take a post-graduate course in medicine, but could find no school that offered the advanced work he required.

As Bellevue Hospital Medical College afforded the most opportunities for clinical study, he matriculated therein and took its degree. He immediately began practicing and teaching medicine and surgery in New York City, and, though he does not say so, it is evident that he at once assumed the prominence in his profession that his great talent and thorough work deserved. It is interesting to read his own estimate of the comparative values of the operations he has devised, of which he considers the ligation of the external carotid the most important. His persistent efforts to establish a post-graduate school of medicine in America resulted in the erection and equipment of the New York Polyclinic, of which he is still the head.

Lack of space forbids a notice of many more interesting points detailed in this charming book. It is a model for the intimate form of autobiography. He writes as one intimate friend might write to another, confident of a sympathetic reader, and to one who remembers anything of the civil war it is hard, after once beginning to read it, to put it down until it is finished.

Every Southerner *ought* to read it, and it is such a fair and unprejudiced account of the war as he saw it, the Northern people also should enjoy it as a "look at the other side."

HOW YOU CAN HELP.

The JOURNAL is constrained to believe that its readers wish it well and are willing to forward its interests if they can do so without expense and with little trouble to themselves. It is easily done. All that is needed is that they shall read the advertisements in our pages, and when they find one in which they are interested, send a postal card to the advertiser asking for further information, printed matter, etc., and saying they saw the advertisement in the SOUTHERN MEDICAL JOURNAL. This implies no obligation to purchase. It simply proves to the advertiser that his advertisement is read. That is all he requires of us. The rest of the argument is his business. He knows then that we have directed the attention of readers to his article, and it is up to him to make the sale. Try it once, friendly reader. We will be very apt to hear of it, and we shall appreciate the favor.

BOOK REVIEWS

Book of the Sick Room.

Published by Meinecke & Company, 66-70 Park Place, New York, N. Y. Practical Points on Home Care of the Sick and Sick Room Appliance.

This little paper-covered booklet claims that its object is 'to tell you what to do to make the patient comfortable, and the appliances best fitted to accomplish this." It urges the necessity, during illness, of three indispensable provisions: a good doctor, a good nurse, and the best utensils and appliances. Then there are directions for nursing, tables of diet, that stumbling block. In fact this little booklet is a veritable nugget of valuable information. The publishers will mail it free to any doctor who asks for it.

Modern Surgery.

Seventh Edition, Revised, Enlarged and Reset. Modern Surgery: General and Operative. By J. Chalmers DaCosta, M.D., and Samuel D. Gross, Professor of Surgery, Jefferson Medical College, Philadelphia, Pa. Seventh Edition, revised, enlarged and reset. Octavo of 1515 pages, with 1085 illustrations, some of them in colors. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, $6.00 net; half morocco, $7.50 net.

The seventh edition of this well-known book contains all that is now valuable from former editions and so much new material that the entire volume had to be reset from cover to cover, yet by changing the type each page contains seven lines more and although the equivalent of 250 pages of new matter have been added, the book itself is very little larger than its predecessor. It contains descriptions of all the late approved operations and those old ones which have stood the test of long continued use. Surgeons who own former editions will feel that they must have the latest, and those who purchase for the first time will secure a new help in their daily work.

The Principles of Pathologic Histology.

By Frank B. Mallory, M.D., Associate Professor of Pathology, Harvard Medical School and Pathologist to the Boston City Hospital. Octavo of 677 pages, with 497 figures containing 683 illustrations, 124 in colors. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, $5.50 net.

The author takes for granted that a thorough knowledge of technique is possessed by the reader and devotes no space whatever to descriptions of such. Thus he has been able to cover a greater scope on fewer pages and has described the cellular elements entering into the different stages of each pathologic process, including all the various causes, which will produce a common end result, for example sclerosis. The work is as near original as it is possible for such work to be and the author states he has constantly had the material before him and has written from what he saw rather than from what some one else has said of a pathologic process.

The subject is discussed in a masterful manner which could only be done by one having authority based upon experience. A medical library is incomplete without it.

CORRESPONDENCE

EXTRAORDINARY SESSION OF CANAL ZONE MEDICAL ASSOCIATION AT SAN FRANCISCO EXPOSITION.

Editor Southern Medical Journal:

It is the desire of the Medical Association of the Isthmian Canal Zone to be represented at the Panama-Pacific Exposition to be held in San Francisco during the year 1915.

It was decided at the November meeting of the society to hold an extraordinary session at the exposition some time during the medical period, which begins June 13 and ends July 3. The most desirable time appears to be the week beginning June 14, 1915, as this date is near the meeting to be held by the American Society of Tropical Medicine, and the meeting of the American Medical Association.

It seems appropriate that our society should be represented and it is therefore earnestly requested that all former and present members will endeavor to assemble at San Francisco during that week and be prepared to support those in charge of the session.

Former members who now live near San Francisco will be asked to take the lead in perfecting the plan and as soon as the temporary chairman can be appointed the members are requested to get in early communication with him and express their intentions in regard to attendance, and also offer any suggestions in regard to making the extraordinary session a success.

Due notice will be given as soon as the temporary chairman can be named.

H. C. CLARK, Secretary-Treasurer.
Medical Association of the Isthmian Canal Zone.
Ancon, C. Z.

KEEPING CASE RECORDS.

Another Dose of What Dad Thinks.

My Dear Billy: It has been said with much truth that no two doctors have ever practiced medicine in exactly the same way since the world began, and I think there never will be two men so alike in all the elements that go into their characters as to allow them to see everything from the same angle, and thus enable them to attack in the same way the problems presented by the case in hand. In even so little a thing as the mechanical methods used in keeping case records, the things to be noted, the way of setting down the chosen facts, the words used, and all that rightfully belongs to that important branch of practice, differ as widely as the poles. I have known some men, and it is a matter for thankfulness that God has made few of that kind of fool, who would spend hours of the most valuable time in putting down, in more or less legible and more or less lucid words, all the facts which a garrulous patient during very prolonged interview could dig out of her inner consciousness or manufacture for the occasion. When the case-taking was done there was a mass of facts, words, statements, deductions and conclusions that would have done credit to Herr Professor Teufelsdroch's most wordy moment. In it were buried the elements that were necessary, but without as much labor as was required in the first instance no one could find what was of immediate need on the second visit, and no consultant on earth had the time, the patience, or the grace to consider it when called in to advise with the physician in charge. It is bad to get into the habit of this loquacious chattering form of case taking, for it tends always to get worse and worse, and after a few years it chokes the life out of the ability to practice. It is a most dangerous and insidious custom and one drowns in one's own ink frequently while the fatigued patient goes to some other doctor whose records do not show such verbal diarrhoea, and whose time is too valuable to permit the writing of a book for each sufferer. It is far better to keep no records whatever, than it is to keep such as this. That some very successful doctors have never kept any case records and yet have made good in curing the sick does not militate against the general idea that all doctors should keep them. How can a man write anything that has value without a full and carefully kept record of the cases on which he bases his deductions? Is it safe to guess at the number of patients of any kind of disease that may be considered? I remember once being told by a man, who was quite busy usually, that he had made two hundred visits that day. I think a man who writes that he has a thousand connective cases of pneumonia without a single death comes as near being a liar as does this man, and I know that the keeping of a record which showed the prominent facts of his cases would have demonstrated to the first doctor mentioned, as well as to the other, that he could neither make two hundred visits a day nor save a thousand cases of pneumonia in succession. If the keeping of a record helps to prevent a doctor from falling into the error of becoming a prodigious liar it has done a lot of good, and the cost in time and effort is repaid a thousandfold. To be exact and reliable in all statements is not a small matter to any physician who respects himself and honors his work, nor is it any more than the profession at large has a right to expect from every man.

In case-taking and in the recording of the findings there must be a strict rule followed. It will not do to begin with a patient's ancestry today, and tomorrow tackle in a new case the personal facts first, or the day after tomorrow begin with the physical findings. This soon leads to the habit of regarding all records as useless, and to the speedy making of them so. In forming the habit of getting the facts, and of basing on these facts the view of the case that is to be held through the treatment, it is well worth while to follow a fixed and set plan, and to have such blanks printed as will make the task both regular and easy. I once knew a man whose system was to write and write, and to never have the same facts in the same place in the record. It was his habit to place some of the important symptoms and signs next to the most trivial, and on the next visit of the patient to take such time as was necessary to read all, the trivial and unnecessary and unimportant just as much as those that were really of value. The wise looks and the apparent pondering of the facts as he read slowly through the mass was enough to make the fortune of a player, and for a while it tended to make him have all the work he could do. Then, gradually, the patients woke to the fact that it was not wisdom that made him take the interminable time he took to go over the cases, and the reaction did infinite hurt and weeded from his practice the best and most desirable patients, and left him the fools who had plenty of time and little money. It was his habit to take the opinion of an oculist, to whom he submitted some of his patients before giving them treatments considered dangerous, and enter thus the reply or report of the expert:

"My Dear Doctor Carolus Dithyrambus: I find

on very careful and expert and exhaustive examination that your patient, Mr. John Sebastian Moltke Smith, has no trouble with his eyes or other organs that will in any way prevent the use of the Dioxy-diamido-arseno-benzene-dihyrochloride, nor in any way lead me to expect any but the most salutary results from its immediate or prolonged use. With all kind regards and confraternal greetings, I am,

"Yours very sincerely,
"Phineas Terbuckle Voltigern, M.D."

And all this was painfully copied, without the omission of a comma or a letter, into the record, and had to be read each time the patient was seen. Each mention of the blood pressure was in a different place, and to find anything regarding that most important fact there was a mass of reading to be done that was simply appalling. Well, this is so much for the improper way to keep a record of the facts of a case under treatment. In far less time I can tell you my way of keeping the memorandum so that the related facts are quickly put down, and as quickly reread when the patient returns. I put the blood pressure in a column that will have nothing else in it. The genito urinary facts are put down in their own place, and so with all the other findings, derived from examination or question. The family record has its place, the diagnosis has its own column or its little sacred reservation. There are few things in all the realm of the practice of medicine which are of more importance than the remembering and sticking to a well made diagnosis. And it is impossible to always remember what was mentioned as the result of all the careful work done in the case without having it written in a place which can be easily refound when imperative occasion arises for a restatement of opinion. I will send you in this one of my blanks, and you can have some made like it, or you can improve on it by taking a little thought.

Hoping you will acquire the habit and lose no time in getting it fixed in your mind that it is necessary to keep records of all cases seen, I am,

Always your interested dad,
Hippocrates Plum, M.D.

SOUTHERN MEDICAL NEWS

ALABAMA.

At Mobile the dairymen are complaining that the standards required of them are too rigid and asking amendments to the city ordinance.

Late in December Mr. Clyde Furst, Secretary of the Carnegie Foundation, visited the medical college at Mobile. He expressed himself as satisfied, saying that this school was one of the very few Southern schools that adhered strictly to its published entrance requirements and maintained those standards without deviation.

Governor O'Neal, late in December, received information that freight cars were coming from New Orleans into Alabama which did not bear the seal of the United States health experts who have charge of the bubonic plague cases in Louisiana. He has issued warning that in case of future violation of this rule those responsible will be prosecuted.

Maj. Harry T. Lay, surgeon in the medical department of the Alabama National Guard sailed from New York late in December for a point nearest the Austrian battle line, where he will act as American Red Cross surgeon for the Austrian soldiers.

Dr. John Kimbrough, Jr., of Mobile, has been appointed First Lieutenant in the Alabama Medical Corps. He will be stationed with the First Sanitary Company, at Mobile.

Dr. Charles A. Mohr, city health officer of Mobile, attended the annual meeting of the American Public Health Association, at Jacksonville, Fla. He exhibited there four models of rat-proofing construction work, copies of the city rat-proofing and stable ordinances, and a series of photographs showing the rat-proof work in construction in Mobile.

At Clanton, December 4th, the Medical Society of Chilton County elected the following officers for the ensuing year: Dr. W. H. Bell, of Verbena, President; Dr. T. J. Marcus, Clanton, Secretary-Treasurer.

At Anniston, December 3rd, the Calhoun County Medical Society elected the following officers: Dr. H. M. Martin, President; Dr. T. H. Reaves, Vice-President; Dr. John R. Rowan, Censor. Dr. R. L. Hughes was re-elected county health officer, and Dr. J. W. Landham, city health officer of Anniston.

At Jasper, December 12th, the Walker County Medical Society elected the following officers: Dr. J. M. Miller, Cordova, President; Dr. T. Manasco, Carbon Hill, Vice-President; Dr. Carl A. Grote, Jasper county health officer.

At Eufaula, December 12th, the Barbour County Medical Society elected the following officers: Dr. B. F. Jackson, Clayton, President; Dr. W. P. Copeland, Eufala, Vice-President; Dr. W. J. Fenn, Eufala, Secretary. The society passed memorial resolutions upon the death of Dr. W. H. Robertson, of Clayton, who served several years as its president.

At Florence, December 3rd, the Lauderdale County County Medical Society elected the following officers: Dr. E. B. Hardin, President; Dr. W. B. Turner, of Oakland, Vice-President; Dr. W. J.

(Continued on page xviii)

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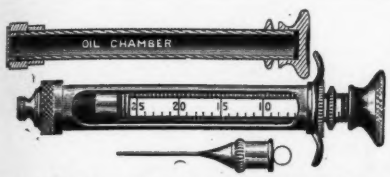

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Please mention The Southern Medical Journal when you write to advertisers.

(Continued from page 166)

Kernachan, S cretary-Treasurer and County Health Officer. Dr. P. I. Price, City Health Officer for Florence.

On December 8th the St. Clair County Medical Society elected the following officers: President, Dr. J. G. Wilkinson, Ragland; Vice-President, Dr. J. H. Martin, Springville; Secretary-Treasurer, Dr. Jordan, Ashville; County Health Officer, Dr. D. E. Cason, Odenville.

At Centreville, December 8th, the Bibb County Medical Society elected the following officers: Dr. J. G. Vance, Marvel, President; Dr. W. M. Peters, Vice-President; Dr. M. B. Williams, Secretary-Treasurer; Dr. W. J. Nicholson, County Physician.

At Athens, December 8th, the Limestone County Medical Society elected the following officers. President, J. S. Crutcher; Vice-President, Dr. K. A. Darby; Secretary-Treasurer and Librarian, Dr. A. L. Glaze.

At Fayette, December 3rd, the Fayette County Medical Society elected the following officers: President, J. A. Branyan; Vice-President, Dr. A. L. Blakeney; Secretary-Treasurer, Dr. J. T. Weathers; County Health Officer, Dr. T. M. Peters; County Physician, Dr. J. F. Randolph.

At Huntsville, December 7th, the Madison County Medical Society elected the following officers: Dr. Frank Wilson, Huntsville, President; Dr. L. P. Esslinger, Newmarket, Vice-President; Dr. Ernest Walker, Huntsville, Secretary-Treasurer; Dr. T. E. Dryer, Health Officer.

At Tuscaloosa the County Medical Society has elected Dr. J. J. Durrett City and County Health Officer. The county is to pay $1,800 and the city $600 annually, making his compensation $2,400.

At Orrville, on December 20th, Dr. Robert D. Jackson, a retired physician, aged 84 years, for a number of years a member of the State Pension Board, died at the residence of his daughter, Mrs. J. B. Beaird. He served as a Confederate surgeon through the Civil War.

From Tuscaloosa Dr. George H. Searcy, medical examiner of public schools, reports that in two schools he has found 44 cases of trachoma, mostly mild. The patients come mostly from the cotton mill district. Gattage has been performed on a few of the cases and refused by others. Children still at school receive daily treatment from nurses. A few who were excluded from school on account of the severity of the disease receive some treatment at home from a visiting nurse.

At Mobile, December 19, the Medical Society of Mobile County elected the following officers: Dr. J. T. Inge, President; Dr. D. T. McCall, Vice-President; Dr. W. W. Scales, Secretary; Drs. H. T. Inge and W. G. Winthrop, members of the Committee of Public Health; Dr. J. L. Cawthorn, County Physician; Dr. Means Blewett, Health Officer, Citronelle.

ARKANSAS.

At Little Rock, December 16th, the Pulaski County Medical Society elected the following officers: Dr. J. B. Dooley, President; Dr. A. M. Zell, Vice-President; Dr. S. M. Gates, Secretary; Dr. W. R. Bathurst, Treasurer.

At Foreman, December 3rd, the Little River County Medical Society elected the following officers: President, Dr. T. T. Shackleford, of Foreman; Vice-President, Dr. A. D. Cathey, of Wilton; Secretary-Treasurer, Dr. W. E. Vaughn, of Richmond. The next meeting will be in Ashtown on the first Tuesday in January.

At Batesville, December 7th, the Independence County Medical Society elected the following officers: Dr. McAdams, President; Dr. Craig, Vice-President; Dr. Drennen, Secretary.

Dr. William H. Deaderick, of Hot Springs, announces the removal of his office to the Dugan-Stuart Building, opposite the Arlington Hotel.

Dr. E. H. Eastman has removed from Hot Springs to 331 East 47th St., Chicago, Ills.

DISTRICT OF COLUMBIA.

Dr. William White, at Washington, Superintendent of the Government Hospital for the Insane, was called by the defense in the trial of Herman Kabansky, for the alleged murder of a Mrs. Lena Raboy, but declined to offer expert testimony as to the insanity of the accused.

Dr. Frank Leech has been elected President of the Medical Society of the District of Columbia, to succeed Dr. J. R. Wellington. Dr. A. L. Stavely was elected Vice-President; Dr. A. P. Boswell, Second Vice-President; Dr. A. L. Hunt, Corresponding Secretary; Dr. H. C. Macattee, Recording Secretary, and Dr. Charles W. Franzoni, Treasurer.

The Medical Staff of the Children's Hospital on December 17 adopted resolutions commending Dr. Albert F. A. King, deceased, for long and faithful service as a member of the hospital staff.

Dr. Albert F. A. King, for the past 42 years a professor in the medical faculty of George Washington University, died suddenly at his home, 1315 Massachusetts Avenue, N. W., on December 12th. He was a native of England. His "Manual of Obstetrics" is well known.

FLORIDA.

The Tampa Tribune of December 9th, recording the case of the murder of the business manager of the Jacksonville Times-Union by a man crazed from taking too much "headache powder" calls upon Dr. Porter, State Health Officer, to publish the name of this powder, to which he attributed the insanity of the murderer.

At the Jacksonville meeting of the American Public Health Association the President, Dr. William C. Woodward, declared that the cause of public health suffered because there were too many contradictory and unequipped health agencies. The remedy he proposed was that the government should control them all.

The Tampa Tribune endorses the resolutions passed at the American Public Health Association to fight the manufacture and sale of quack medicines and to inaugurate a campaign among American newspapers for their co-operation.

The Southern Health Exhibition in Morocco Temple, at Jacksonville, closed December 6th, after being open ten days. It is estimated that more than 12,000 citizens witnessed its exhibits.

The Hillsboro County Medical Society elected the following officers. Dr. L. B. Mitchell, President; Dr. J. L. Efird, Vice-President; Dr. Edward Smoak, Secretary; Dr. J. W. Lancaster, Treasurer.

(Continued on page xx)

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(Continued from page xviii)

At Palatka 57 applicants for license to practice medicine, two of whom are women and five colored, went before the Florida State Board of Medical Examiners.

At Tampa, December 24th, Dr. William Pitt Lawrence died suddenly at his home, No. 506 Twiggs St., of heart failure. His age was 57 years. He served the government as assistant surgeon during the Spanish-American war, and was himself a yellow fever sufferer.

At Bartow, December 12th, Dr. R. J. McMurray died at his home from typhoid fever. He leaves a widow and one daughter about seven years old.

At Ft. Mead, December 31, Dr. Calaway G. Reagin died at the age of seventy-nine years.

GEORGIA.

At Macon the four City Physicians are asking that their salaries be raised from $540 a year to $750, since their duties have been increased under recent regulations. The new charter of the city has changed the number of members of the board of health to three physicians and two laymen. The members are appointed by the mayor and hold office for one year.

At Athens, December 4th, the Clarke County Medical Society elected the following officers: Dr. C. N. Sisk, President; Dr. J. C. McKinney, Vice-President; Dr. H. I. Reynolds, Secretary-Treasurer.

At Savannah orders have been issued that the officers and crews of all vessels and dredges of the United States Engineers must be vaccinated against typhoid fever, or accept the "minimum of assistance" if they contract the malady without vaccination.

The Carroll County Medical Society has elected the following officers: Dr. H. J. Goodwin, Roopville, President; Dr. W. L. Fitts, Carrollton, Vice-President; Dr. R. E. Foster, Carrollton, Secretary-Treasurer.

The Muskogee County Medical Society on December 3rd elected the following officers: Dr. J. H. McDuffie, President; Dr. C. A. Peacock, Vice-President; Dr. C. A. Dexter, Secretary; Dr. B. W. Allen, Treasurer.

At Atlanta Dr. W. B. Summerall, Superintendent of the Grady Hospital, recommends the appointment of a resident physician and recommends that the place be given to Dr. T. B. Armstrong, now of the Grady staff.

Dr. W. L. Gilbert resigned his position as a member of the city board of health, having been elected County Commissioner for the county at large.

KENTUCKY.

At Louisville Dr. Milton Board has been named Registrar of the Louisville District by the State Board of Health, to succeed Dr. W. E. Gary. The salary is $1,500. Dr. Board has received from the State Board of Health, and delivered, the commissions of Dr. L. S. McMurtry, Dr. Hugh N. Leavell and Dr. W. E. Gardner, as members of the Jefferson County Board of Health.

Suits were filed with Assistant County Attorney C. B. Craig by J. W. McFarlin, chief pure food inspector for the State of Kentucky, to force the Louisville butchers to clean up their slaughter houses.

The office of Dr. Audrey V. Jones, at 26th and Market Streets, was robbed December 14th of $50 worth of surgical instruments and a valuable diamond.

Dr. Benjamin W. Smock, for twenty years health officer for Jefferson County, committed suicide on the morning of December 16th. He used a razor. He had been in ill health for a long time.

In the Habit neighborhood, near Owensboro, the public school was closed two weeks in December on account of scarlet fever. The deaths in Owensboro in November show the smallest rate per thousand for several months. There was but one death from typhoid fever.

The Boyd County Medical Society has elected the following officers: Dr. W. O. Eaton, President; Dr. J. W. Mutters, Vice-President; Dr. C. K. Kercheval, Cattlesburg, Secretary, and Dr. W. A. Berry, Treasurer.

December 21st the Jefferson County Medical Society elected the following officers. Dr. Ap. Morgan Vance, President; Dr. R. Lindsey Ireland, First Vice-President; Dr. Jethra Hancock, Second Vice-President; Dr. Bernard J. O'Connor, Treasurer.

The Hopkinsville Academy of Medicine has elected the following officers: Dr. J. A. Southall, President; Dr. M. W. Rozzell, Vice-President, and Dr. J. W. Harned, Secretary.

The Fayette County Medical Society elected the following officers: Dr. Thos. C. Lewis President; Dr. Porter Prather, Vice-President, and Dr. L. C. Redman, Secretary-Treasurer.

The Todd County Medical Society elected the following officers. Dr. C. M. Gower, Trenton, President; Dr. Edward Boone, Elkton, Vice-President; Dr. L. P. Trebue, Elkton, Secretary-Treasurer.

The Floyd County Medical Society elected the following officers. Dr. J. W. Baxter, President; Dr. P. H. Schoen, Secretary.

The Warren County Medical Society elected the following officers: Dr. Finis London, Woodburn, President; Dr. Ernest Rau, First Vice-President; Dr. Hal Neel, Second Vice-President; Dr. Burnett W. Wright, Secretary-Treasurer.

At Louisville warrants against 29 employes of the Fall City Brewing Company were sworn to by Dr. W. A. Keller, City Physician for the Western District, citing them to appear in court December 31 to show cause why they should not be vaccinated.

From Henderson comes news that four county schools have closed because of diphtheria. One death reported.

John R. Richards, Housing Inspector for the City of Lexington, has prepared a map of the city to show its insanitary condition, particularly in reference to the number of cases of tuberculosis and typhoid fever.

At Elizabethtown the board of health has discovered several cases of smallpox among colored families near Cave Spring.

At Elkton, December 24th, Dr. I. N. Walton, retired physician, died, aged 87 years.

(Continued on page xxii)

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It is made by flaking a soft white wheat—a wheat with a tender bran. The bran is rolled into the flakes.

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It supplies the bran in unground form—the form which is most effective. It supplies enough—the food is one-fourth bran. Yet the bran is scarcely apparent.

You will find in Pettijohn's the most efficient, most delicious bran food made. And it contains the whole-wheat nutriment beside.

Pettijohn's

Rolled Wheat with the Bran

Package Free

We will mail to any physician a full-size package for testing at home or with patients. Please ask us for it.

Most better-class grocers sell Pettijohn's for 15 cents per package. It has national distribution, so any grocer can get it from his jobber. For free package address

The Quaker Oats Company
Chicago, Ill. (798)

(Continued from page xx)

LOUISIANA.

Through the efforts of officers in the U. S. P. H. Service Congress has passed a special deficiency appropriation of $200,000 to continue the rat eradication campaign. Handsome chests of silver were presented to Surgeon Creel and Surgeon Corput, of the U. S. P. H. Service in the city late in December.

Tulane Medical College has granted all the privileges of the college to women students upon the same terms as to men.

The Louisiana Anti-Tuberculosis League of this city has elected the following officers: Dr. J. George Dempsey, President; Miss Kate M. Gordon, First Vice-President; Dr. George S. Brown, Second Vice-President; Dr. G. Farrar Patton, Secretary, and Dr. E. W. Mahler, Treasurer.

The State Board of Health has appointed Dr Sidney Porter medical inspector.

Dr. Arnott K. Duncan, of 2406 Prytania St., has been nominated to the U. S. Senate to be a first lieutenant in the Medical Reserve Corps of Louisiana.

Mr. Frederick Ricker was fined by Recorder Hogarty $10 for refusing to obey the rat-proofing law. He gave notice of appeal.

At Monroe Dr. Dowling appeared before the grand jury to report owners of slaughter houses failing to meet the requirements of the State Board. He declared the parish jail a disgrace to humanity, and carried with him a large envelope full of filth he had scraped up with a shovel in one of the cells.

At Shreveport Dr. G. C. Chandler, City Health Officer, urges local physicians to report cases of diphtheria within the time limit fixed by law. The board has already filed charges against two physicians and a Christian Science healer who have failed to comply with the law.

The Acadia Parish Board of Health has requested the State Board to take charge of the small pox situation in the parish. From fifty to sixty cases have been reported. Dr. Meyer Newhauser was sent to Crowley to take charge. The Parish Board of Health, of which Dr. Harris C. Webb is President, was said to be at a disagreement with the police jury. The physicians are busy vaccinating citizens, but at the time of this notice many of the Creole population were opposed to the measure.

The Louisiana State Board of Medical Examiners announces that beginning June 1st, 1915, candidates for licensure shall be required to submit evidence showing the completion "at an approved college or university of one full year of work in the branches of biology, physics, chemistry, and in one modern language."

MARYLAND.

At Hagarstown the Board of County Commissioners, sitting as a board of health, passed resolutions that emasculate the law of compulsory vaccination. At a later sitting they withdrew that resolution and "instructed him informally to enforce the law requiring vaccination of all children before they can enter the public school."

At Catonville the managers of the Spring Grove State Hospital, of which Dr. J. Percy Wade is superintendent, appointed Dr. Arthur L. Wright, of Baltimore, third assistant physician.

At Salisbury the Washington County School Board has instructed the teachers of the county to enforce the State law requiring all children to be vaccinated before entering the public schools. This is in opposition to a resolution previously passed by the County Board of Health.

At Baltimore, December 18th, Dr. C. C. Wingo, of 228 North Greene Street, celebrated his ninety-first birthday. He is well and vigorous, but not engaged in practice.

On October 2nd Dr. George P. Reynolds died very suddenly at his residence, 809 N. Charles St., Baltimore.

At Washington, January 3rd, Dr. Charles William Cnancellor died at his home, 1712 N. St., N. W., aged 84 years. He was medical director of Picket's brigade in the Confederate army.

MISSISSIPPI.

The Newton-Neshoba-Winston Tri-County Medical Society elected the following officers: Dr. A. N. Harralson, Newton, President; Dr. W. H. Mars, Philadelphia, First Vice-President; Dr. S. A. Majure, Union, Secretary-Treasurer.

At Mendenhall the Simpson County Medical Society elected the following officers: Dr. T. Gandy, of Weathersby, President; Dr. W. F. Stroud, Panola, Vice-President, and Dr. J. L. White, Panola, Secretary-Treasurer.

At Purvis the Lamar, Marion, Pearl River County Medical Society elected the following officers: Dr. Nimmocks, of Poplarville, President; Dr. E. W. Mackey, of Purvis, Vice-President; Dr. D. B. Stevens, Secretary-Treasurer.

At Tupelo, December 15th, the East Mississippi Four Counties Medical Society elected the following officers: President, Dr. J. O. Gurney, of Tupelo; Vice-President for Lee County, Dr. M. M. McMillan, Guntown; for Chickasaw, Dr. John C. Walker, Houlka; for Itawamba, Dr. W. L. Orr, Fulton; for Monroe, Dr. W. N. Reed, Amory. Dr. F. J. Underwood, of Littleton, was elected Secretary-Treasury for the sixth consecutive term. At the coming meeting in February the society decided to have a symposium on drug addictions and their attendant nervous manifestations.

At Columbus on January 1st, Dr. Charles C. Meek died from accidentally taking a large dose of chloroform. He was 30 years of age and leaves a young wife.

At Jackson the new Mississippi Baptist Hospital, corner of N. State and Manship Streets, was dedicated in December. It is said to be one of the most modernly equipped hospitals in the South.

At Wesson, January 9th, Dr. J. A. Rowan died at his home, aged 61 years. He was the father of Dr. W. H. Rowan, until recently chief sanitary inspector for the State Board of Health.

At Biloxi, December 3rd, Dr. Thomas O. Hunter, City Health Officer, died very suddenly, being ill but a few minutes. The cause is supposed to have been some heart trouble.

At Winona, December 9th, Dr. T. R. Trotter died, aged 77 years. He served as an officer in the Confederate army through the civil war.

(Continued on page xxiv)

Leaders in Standardization

The H. K. Mulford Company are leaders in the pharmaceutical and biological fields because of their scientific work in the preparation and the chemical and physiological standardization and bacteriological testing of drugs and biological products.

Every substance entering into the composition of the manufactured products is examined for uniformity, purity and strength. The reputation of both the physician in prescribing and the pharmacist in dispensing the Mulford products is thus insured.

Pharmaceutical Laboratories, Philadelphia.

The Mulford Research Laboratories have proved that uniform strength of digitalis, ergot and strophanthus are best secured by **standardization and by protection of the finished products in vacuo.**

The Jour. of the Amer. Med. Asso., Sept. 13, 1913, reports the examination of several products of a number of pharmaceutical houses. The following facts were established concerning fluid extract of digitalis:

First.—Digitalis varies in activity as much as 300 per cent.

Second.—The Mulford Fluid Extract Digitalis was **the most active**—four times as active as the weakest.

Third.—Digitalis preparations assumed to be physiologically assayed showed a variation of more than 100 per cent.

Fourth.—The Mulford Fluid Extract of Digitalis was 50 per cent more active than that second in activity, and nearly four times more active than the weakest product examined.

Deterioration of Fluid Extract of Ergot amounts in some cases to 50 per cent per year, due to the air contained in the fluid. In the Mulford Vacule all air is removed and the container hermetically sealed under vacuum. **Physiological tests** show the permanent activity of the **Mulford Vacules** (Vacuum ampuls) of

Tincture of Digitalis, U. S. P.; Digitol (Tr. Digitalis, fat-free, Mulford); Fluid Extract of Ergot, U. S. P.; Cornutol (Liquid Extract of Ergot); Tincture of Strophanthus, U. S. P.

H. K. MULFORD COMPANY, Philadelphia, U. S. A.

Manufacturing and Biological Chemists

New York Chicago St. Louis Atlanta Kansas City New Orleans San Francisco Minneapolis Seattle
Toronto, Canada London, England Mexico City Melbourne, Australia

(Continued from page xxii)

NORTH CAROLINA.

At Concord early in December the Seventh District Medical Society elected the following officers: President, Dr. W. D. Pendleton, of Concord; Vice-President, Dr. H. M. Biggs, of Rutherfordton; Secretary-Treasurer, Dr. S. B. Thompson, Charlotte. Next year it meets at Rutherfordton.

Robeson County reports a reduction in its death rate during the past year from 18 per thousand to 12. Dr. B. W. Page believes the death rate the correct index to health work. He has been whole-time health officer of Robeson County for three years. Tuberculosis has dropped from 147 per ten thousand to 70; infantile diarrhoea from 90 to 4; typhoid from 33 to 4, and pneumonia from 135 to 25. There has been a saving of lives worth $290,000 every year since the employment of a whole-time health officer, and the death rate from preventable diseases has been reduced 70 per cent, that from malaria alone being 75 per cent.

At Winston-Salem the Forsythe County Medical Society, on December 9th, elected the following officers. President, Dr. E. P. Gray; Vice-President, Dr. S. D. Craig; Secretary-Treasurer, Dr. R. L. Wall.

At Raleigh, December 10th, Dr. R. H. Bryce, of Ottawa, Canada, Medical Officer of the Interior, spent the day in the city as a guest of Dr. R. H. Lewis. He also visited Dr. W. S. Rankin, Secretary of the State Board of Health.

The Pasquotank-Camden-Dare Counties Medical Society, on December 3rd, elected the following officers: Dr. C. B. Williams, President; Dr. W. A. Hoggard, of Woodville, Vice-President; Dr. R. L. Kendricks, Secretary-Treasurer. Dr. Kendricks is a new member.

At Dunn, December 3rd, the Harnett County Medical Society elected the following officers: Dr. J. W. McLain, of Godwin, President; Dr. H. C. Roberts, of Coats, Vice-President; Dr. W. P. Holt, of Duke, Secretary-Treasurer.

At Asheville, December 21st, the Buncombe County Medical Society elected Dr. Eugene B. Glenn President for the ensuing year. The meeting was held in the council chamber of the city hall and was followed by a banquet.

At Winston-Salem, through the co-operation of the most prominent physicians of the city, free medical treatment will be given the worthy poor, at the Spencer Sanitarium. One or more physicians will be at the sanitarium daily at from twelve to 1:30 o'clock.

At Rutherfordton Dr. M. H. Biggs has been appointed Chief Surgeon of the Carolina, Clinchfield & Ohio Railway.

OKLAHOMA.

The City Commissioners of Oklahoma City have warned two of the dairymen supplying the city with milk that they must clean up their premises within fifteen days or their licenses will be revoked.

At Weatherford, Dr. S. T. Williams, while feeding his team dropped his lantern, setting his barn on fire. He himself fell and sustained a fracture of the hip.

Governor R. E. Williams has appointed Dr. J. W. Duke, of Guthrie, to succeed Dr. J. C. Mahr as State Commissioner of Health. Dr. Mahr will open a private hospital in Oklahoma City, to be known as "A Hotel for Sick People."

At McAlester a new hospital for convicts has been completed at the penitentiary. It has a capacity of fifty beds, with convict doctors and nurses in charge, under the direction of Dr. J. W. Echols, Penitentiary Physician.

The State Health Commissioner on January 2nd reported that a little Hughes County girl named Marie Johnson, who was attacked some time ago by a rabid dog, died that morning from hydrophobia. The Pasteur treatment was promptly and thoroughly administered, but without avail. Two men who were attacked by the same dog are receiving the treatment. They have not yet shown signs of hydrophobia.

State Health Commissioner, Dr. J. C. Mahr, has issued a note of warning against rabid dogs at this season of the year. He says they are so numerous that the "condition is nothing short of serious."

SOUTH CAROLINA.

At Columbus, December 8th, the City Board of Health presented to the city council a resolution asking for an ordinance requiring bread to be wrapped before delivery. The ordinance was adopted.

At Spartanburg, December 15th, Dr. Thomas W. Jackson, of the U. S. Public Health Service, has assumed the directorship of the city's public health department, succeeding Dr. B. F. Kaupp, who recently resigned.

At Florence, December 9th, the Pee Dee Medical Society elected the following officers: Dr. B. M. Badger, of Dillon, President; Dr. C. R. May, Vice-President; Dr. Lawson, Secretary, and Dr. F. K. Rhodes, Treasurer.

The County Medical Society also elected officers: President, Dr. W. S. Lynch, Scanton; Vice-President, Dr. S. R. Lucas, Florence; Secretary-Treasurer, Dr. D. H. Smith, Florence.

At Columbia, December 3rd, the State Board of Medical Examiners announced the results of the recent examination for licenses to practice medicine. There were 36 applicants, of whom 19 were successful. One osteopath, Sarah A. Moore, of Slippery Rock, Pa., succeeded. A large number of applicants for certificates as registered nurses passed satisfactory examinations.

At St. Matthews, December 3rd, the Calhoun County Medical Society was organized, with the following officers: President, Dr. L. B. Bates; Vice-President, Dr. A. P. Traywick; Secretary-Treasurer, Dr. T. H. Symmes.

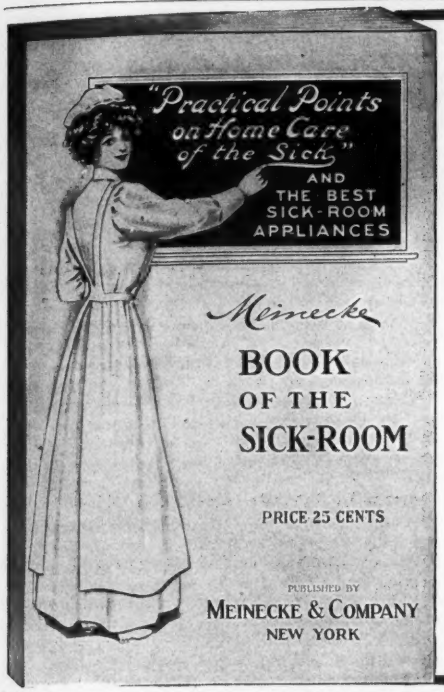
At Charleston, Health Officer Green has sent out letters to dairy owners, ordering that all cows furnishing milk for city customers must take the tuberculin test within two months.

At Easley, December 3rd, the Pickens County Medical Society elected the following officers: Dr. J. L. Valley, of Pickens, President; Dr. H. E. Russell, of Easley, Vice-President, and Dr. J. P. Jewell Secretary.

TENNESSEE.

At Nashville Drs. Duncan and Paul F. Eve sold their infirmary property in November and tem-

(Continued on page xxvi)



FREE COPY TO PHYSICIANS

It has been estimated that probably 90% of the families having sickness cannot afford a Trained Nurse, or prefer to nurse the patient themselves, unless the case is very serious or contagious.

The Home Folks, as a rule, do not know how to carry out your instructions; neither do they know how to make the patient comfortable, nor the best Nursing Appliances to get.

This Book saves a great deal of your valuable time by telling the Home Folks how to do these things. It is just the kind of Book you would select yourself for distribution amongst your patients.

A copy will be sent to you FREE on receipt of your card or prescription blank; and a copy will be sent to any of your patients on receipt of 25 cents.

MEINECKE & COMPANY

Advanced Specialties for Hospital and Sick Room

66-68-70 PARK PLACE, NEW YORK

The Exciting Organism

ISOLATED FROM CULTURES, IDENTIFIED AND MADE INTO AN

Autogenous Vaccine - - - - - - - $5.00

GONORRHOEA DIAGNOSIS BY THE COMPLEMENT FIXATION TEST - - - - - - - - - - - - - $5.00

In making this test we use as antigens a mixture of twenty different cultures from both male and female and which contains the several strains.

DIFFERENTIAL DIAGNOSIS OF SPINAL FLUID BY THE LANGE COLLOIDAL GOLD TEST - - - - - - - - $5.00

Differentiates between Pyogenic, Tubercular, Syphilitic Infection and General Paresis.

DIAGNOSIS OF PATHOLOGICAL TISSUE - - - - - - - - - - - $5.00

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National Pathological Laboratory

MALLERS BUILDING, 5 S. WABASH AVE. CHICAGO

(Continued from page xxiv)

porarily used the Douglass Infirmary until the Galloway Memorial Hospital is finished.

At Memphis, on the 8th of December, Dr. George Robertson Livermore and Miss Katherine Kerr Carnes were united in matrimony at Calvary church.

In Nashville the city nurses in November made 403 visits, 297 to white persons and 106 to negroes. 1,049 quarts of sweet milk were supplied to the poor. The number of charity prescriptions was 1,695.

At Chattanooga, where a virulent form of smallpox has been raging, the health authorities are urging all employers to insist upon the vaccination of all their people. The disease is hemorrhagic in character.

At Memphis the Memphis and Shelby County Medical Society elected the following officers. Dr. J. C. Ayres, President; Dr. W. C. Campbell, Vice-President; Dr. J. L. Andrews, Secretary.

At Harriman the Roane County Medical Society elected the following officers: Dr. H. M. Carr, President; Dr. T. H. Phillips, Vice-President; Dr. W. H. Hill, Secretary; Dr. G. C. Given, Treasurer.

At Franklin the Williamson County Medical Society elected the following officers: Dr. Sam White, President; Dr. J. D. Smith, Vice-President; Dr. K. S. Howlett, Secretary, and Dr. B. T. Nolen, Treasurer.

Surgeon-General Blue has designated Passed Assistant Surgeon W. H. Frost to go to Knoxville to investigate the water supply.

At Nashville, December 26th, Dr. Paul F. Eve, the widely known surgeon, died at his home at 1529 Broadway, after a brief illness. Blood poisoning from an undetermined source is supposed to have been the cause. His age was 58 years. He is survived by his wife, a daughter, and a son, Dr. Paul F. Eve, Jr.

The Chattanooga Academy of Medicine and the Hamilton County Medical Society have adopted a new medical fee bill which materially increases former prices. Failure to maintain minimum prices subjects members to charges of unprofessional conduct. The minimum charge for abdominal operations is $100, for an obstetrical case, $15.

TEXAS.

Dallas.

Upon suggestion by Dr. T. C. Gilbert, County Health Officer, the County Commissioners Court has nominated a staff of Dallas physicians and specialists to act as advisory and visiting staff for the Woodlawn Tubercular Hospital. The physicians nominated are Drs. Grigsby, Calvert, Howard, Baird, Jones, Loving, Bruce, Wilkinson, McBride, Wright and Bettison. Dr. Gilbert acts as chairman.

The November report of Dr. A. W. Nash, City Health Officer, shows that the births exceeded the deaths more than two to one. There were seven deaths from typhoid. There were 181 rooms fumigated. There were 67 cases of scarlet fever and four cases of smallpox without deaths.

The seventieth semi-annual meeting of the North Texas Medical Society held a four days' meeting in the city. About 50 doctors were present beside those of Dallas. The concluding session was held at the Oriental Hotel ladies ordinary. The following officers were elected: Dr. R. W. Baird, Dallas, President; Dr. M. M. Morrison, Denison, Vice-President; Dr. H. Leslie Moore, Dallas, Secretary; Dr. C. R. Johnson, Gainsville, Treasurer.

The Dallas County Medical Society has elected the following officers: Dr. W. C. Swain, President; Dr. J. B. Watson, Vice-President; Dr. R. S. Loving, Secretary; Dr. W. T. Baker and Dr. C. R. Hannah, Censors.

Houston.

Dr. C. C. Green, City Health Officer, warns the people of Houston to continue boiling their drinking water for the present.

The City Council has authorized the City Health Officer to revoke the permit of any dairyman who fails to comply with the requirements of the pure food laws. Dr. Belle C. Eskridge, of this city, is the first woman surgeon to receive a "fellowship" in the American College of Surgeons. She is a graduate of the School of Medicine of the Northwestern University, and was born in Virginia.

Galveston.

Dr. A. C. Sutton, recently of Chicago, has been appointed assistant surgeon of the U. S. P. H. Service at this port, Dr. L. P. H. Bahrenburg in charge. Dr. Clyde Furst, Secretary of the Carnegie Foundation, has visited the State Medical College with reference to its entrance requirements.

Dr. Charles W. Trueheart, for many years City Health Officer, died December 14th, at his home, 304 West Laurel Street, aged 77 years. He was an "Honorary Life Member" of Bexar County Medical Society.

At San Antonio the Bexar County Medical Society elected the following officers: Dr. Thomas Dorbandt, President; Dr. Conn L. Milburn, Vice-President; Dr. W. H. Hargis, Secretary; Dr. L. B. Jackson, Treasurer.

Thursday morning, December 10th, physicians and surgeons from Arizona, New Mexico and the western part of Texas assembled at El Paso to attend the recently organized Southwest Medical and Surgical Association. The membership at present is 125, of whom about 50 attended the meeting.

The Denton County Medical Society on December 7th, elected the following officers: Dr. S. McReynolds, President; Dr. J. L. Hooper, Vice-President; Dr. W. G. Kimbrough, Secretary-Treasurer. Dr. O. M. Curtis invited the members present to a three-course luncheon and cigars.

At Huntsville, December 10, the Walker County Medical Society elected the following officers: Dr. E. M. Curtis, President; Dr. E. W. Fowler, Vice-President; Dr. J. W. Thomason, Secretary.

At Gainesville, December 5th, the Cooke County Medical Society elected the following officers. Dr. G. R. Johnson, President; Dr. J. G. Jeannette, Vice-President. Dr. J. R. Lewis was re-elected Secretary.

At Amarillo, December 14th, the Potter County Medical Society elected the following officers: Dr. S. P. Vinyard, President; Dr. J. J. Crume, Secretary; Dr. R. L. McMeans, Censor.

At Cuero, December 17th, the DeWitt, Lavaca,

(Continued on page xxviii)

What is Your Chief Tire Trouble?

Is it rim-cutting?

The greatest way known to combat that is found in Goodyear Fortified tires, and those only.

Is it blowouts?

We spend $450,000 yearly to combat that trouble with our exclusive "On-Air" cure. It wipes out a major cause.

Is it tread separation?

That risk is lessened by 60 per cent, by a patent method, in these Fortified tires.

Is it wear or puncture?

Note our All-Weather tread—tough, double-thick, enduring. Mark how it resists wear, puncture or tread cuts.

Safety Above All

We employ those features to save trouble and upkeep. We alone employ them. But we consider most important our exclusive safety features.

One lies in the deep, sharp, resistless grips of the All-Weather tread. Countless edges and angles face every direction. You never saw another tread which grasps wet roads like that. Yet on dry roads it is flat and smooth-running.

Then we vulcanize into the tire base six flat bands of 126 braided wires. These make the base unstretchable. No power can force off a Fortified tire until you remove a side ring. This is also an exclusive Goodyear feature.

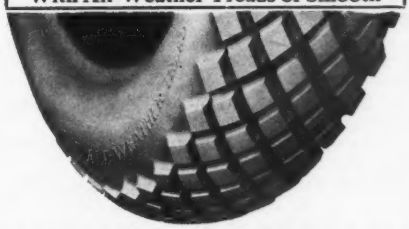
Just Demand Them

If you wish these features you have only to ask for them. Any dealer will supply you Goodyear tires.

More men buy them than buy any other. Last year they bought nearly a million and a half—nearly one for every car in use.

Goodyears are the top-place tires after millions of comparisons. You owe them a test.

GOODYEAR
AKRON, OHIO
No-Rim-Cut Tires
With All-Weather Treads or Smooth



THE GOODYEAR TIRE & RUBBER COMPANY, AKRON, OHIO

(2129)

(Continued from page xxvi)

Victoria and Calhoun Medical Societies, in joint session, elected the following officers: Dr. M. Duckworth, Cuero, President; Dr. J. E. Pridgen, Thomaston, Vice-President; Dr. B. T. Norwiercki, Yorktown, Secretary-Treasurer.

At Beaumont City Recorder Wheat has notified physicians and midwives that if they fail to report births they will be fined $200 each. Dr. L. F. Johnson was appointed medical inspector for the city schools, at a salary of $150 a month. He will make daily visits to all city schools.

At San Antonio, in December, Dr. William Brumby resigned his position on the City Board of Health and on January 1st moved to Waco, to become chief surgeon for The Amicable Life Insurance Company.

VIRGINIA.

The State Board of Health began medical inspections January 4th which will carry the examining physicians into every public school in the State, beginning in Washington County.

The Richmond Academy of Medicine and Surgery met in the Chamber of Commerce Building December 9th and elected the following officers: President, Dr. H. E. Brown; First Vice-President, Dr. W. H. Parker; Second Vice-President, Dr. Virginius Harrison; Third Vice-President, Dr. J. F. Bright. Dr. Mark W. Peyser was elected Secretary for his twentieth term. Treasurer, Dr. J. H. Smith; Librarian, Dr. G. P. LaRoque.

The Lynchburg Medical Society elected the following officers: Dr. G. M. Perrow, President; Dr. George T. Harris, Vice-President; Dr. Robert Lemon, Secretary-Treasurer.

The Public School Board of Petersburg has decided to have a physical examination made of all children in the public school by physicians selected by the parents without cost to them, the doctors having offered to perform the work without charge.

The Southside Virginia Medical Association elected officers while in Petersburg as follows: President, Dr. E. R. Hart, of Suffolk; First, Second, Third and Fourth Vice-Presidents, Drs. H. A. Burke, of Petersburg; T. F. Jarratt, of Sebrell; M. H. Treadway, of Emporia, and William T. Moore, of Valentine; Secretary-Treasurer, Dr. E. F. Reese, of Courtland.

The Elizabeth County Medical Society in December elected the following officers: President, Dr. George Keese Vanderslice; Vice-President, Dr. Harry D. Howe; Secretary-Treasurer, Dr. William E. Knewstep.

The Supervisors of Norfolk County December 8th made the following appointments: Dr. W. P. McDowell, County Health Officer, at $100 a month; Dr. A. M. Burfoot, Assistant Health Officer, at $25 a month.

Of the 41 applicants who took the examinations before the State Board of Medical Examiners, in Richmond, on December 15 to 18, 38 stood the test sucessfully and received their licenses.

WEST VIRGINIA.

At Burning Springs, near Parkersburg, Dr. A. J. Mitchell died at his home.

At Wheeling out of 134 samples of milk taken in November only seven fell below the required standard. As a result of the strict quarantine on cattle shipments out of Belmont County because of the presence of the dreaded foot and mouth disease, cattle, horses, coal, wood, poultry, vegetables and farm products will not be permitted to be brought across the Island bridges unless they can show inspectors' certificates that they are absolutely free from infection. Much of the local milk supply of Wheeling comes from Belmont County.

The Belmont County Medical Society elected the following officers. President, Dr. Park L. West; Vice-President, Dr. F. S. Wright; Secretary-Treasurer, Dr. J. S. McClellan.

CLASSIFIED ADVERTISEMENTS

Advertisements under this heading will cost 75c for fifty words or less, payable in advance. Additional words, 1½c each. All replies received in our care will be promptly forwarded. Southern Medical Journal, Mobile, Ala.

WANTED—Position as superintendent or head nurse in small or medium size hospital. Have had four years' experience in this work. Reference on request. Address 550-MHD, care Southern Medical Journal.

WANTED—Opportunity to become associated with older physician; am 31, single, strictly temperate, graduate A plus school (1912). Have had excellent hospital experience, medical, surgical and gynecological, in Philadelphia and Baltimore hospitals. Very best references given and required. Address 575-AWD, care Southern Medical Journal.

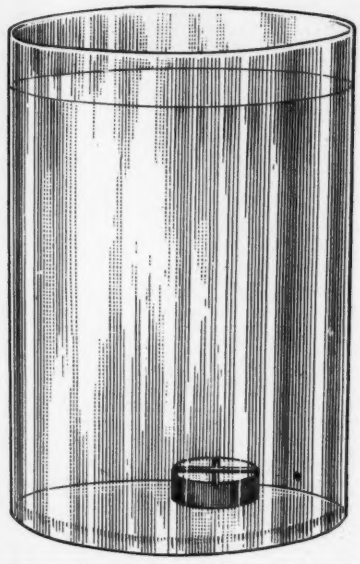
WANTED—Salaried position in reputable hospital or with a city practitioner by a young woman physician experienced in laboratory work, in general practice and in hospital management. Address 525-HAB, care Southern Medical Journal.

JUST PUBLISHED—LIMITED EDITION—Transactions of the second triennial meeting of the National Association for the Study of Pellagra, containing over fifty articles on the various aspects of pellagra. Price, $5.00, delivered. The R. L. BRYAN CO., Publishers, Columbia, S. C.

Best method of collecting. The "advance fee" agency exposed. FREE booklet to any physician or dentist writing for it on his own stationery. Address NATIONAL MERCANTILE AGENCY, Inc., Munsey Building, Washington, D. C.

FOR SALE—TEXAS—General practice of $3,000, established ten years, town of 700 population, near Houston and Galveston. Excellent shell roads in all directions; large territory, competition right; ten-roomed house; three-roomed office located on three lots one block from bank. I am offering the practice with the property for $3,000 cash and $1,000 in one and two years. The property is more than worth the price. References from leading men of Houston and Galveston if desired. Reason, wife's health. Address 475-C, care Southern Medical Journal.

PTOMAINE POISON



Where the patient is suffering agony from ptomaine poisoning as a result of tainted food, place

ONE TABLET OF CHINOSOL

in one tumbler warm water.

Let the patient drink entire tumblerful.

It has many times been shown that this procedure counteracts the influence of the ptomaines and brings relief most promptly. Many patients now dead, might have been saved had physicians all known this valuable truth.

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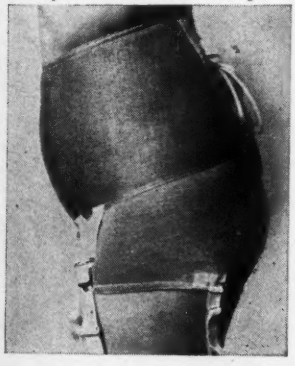

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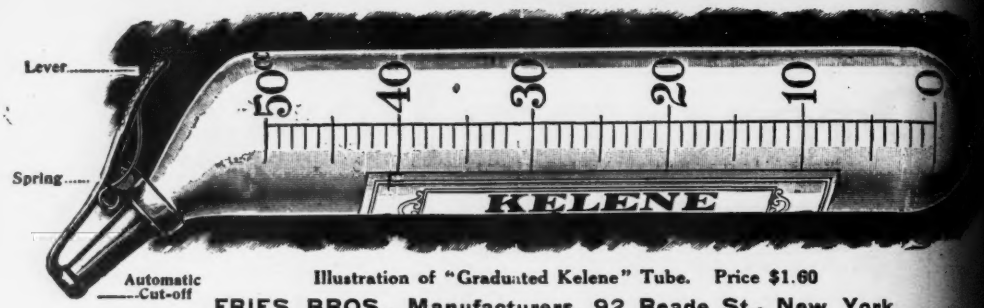

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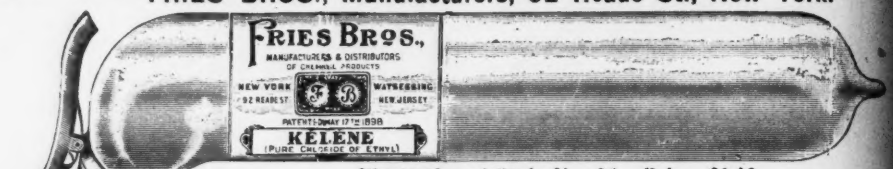

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